

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEU
 Edition : 31.07.95
 replaces : -
 Calibrating oil : ISO-4113

Injection pump : VE4/9F2250R601
 Type number : 0 460 494 367
 Customer Part-No. :

Customer-specific information
 Customer : PSA

Engine : XUD 9 BTF/L3 U6

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
 return>temp. > °C
 with>thermometer> : 40.00...48.00
 Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly> : 1 688 901 022

Opening
 Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
 x Wall>thickness : 2.00
 x Length> mm: 450

Start of delivery
 Prestroke mm: -
 > (from BDC): -

Indicator setting
 Piston stroke> mm: 0,3
 Outlet> : A

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
 Charge press. hPa: 1000
 Setting value mm: 9.30...9.70

Shutoff
 electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1250
 Charge press. hPa: 1000
 Setting value bar: 6.50...7.10
 Shutoff
 electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1200
 Charge press. hPa: 1000
 Del. quantity cm³/
 > 1000S.: 53.50...54.50
 Shutoff
 electromagnet>Volt: 12
 Dispersion cm³/: 2.0
 > 1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
 Del. quantity cm³/
 > 1000S.: 36.0...37.0
 Shutoff
 electromagnet>Volt: 12.0

Low-idle speed regulation

Speed 1/min: 440
 Del. quantity cm³/
 > 1000S.: 15.0...17.0
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 2.0
 > 1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 490
 Del. quantity cm³/
 > 1000S.: 8.00...9.00
 Shutoff
 electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2575
 Charge press. hPa: 1000
 Del. quantity cm³/
 > 1000S.: 12.0...16.0
 Shutoff
 electromagnet>Volt: 12

Start:

Speed 1/min: 150

Del. quantity cm³/: 37.00...67.00
 mind> 1000s.: 37.00
 Shutoff
 electromagnet>Volt: 12

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

| | |
|--------------------------------------|--|
| 1st speed 1/min: 300 | Timing valve Volt: - |
| Charge press hPa: 1000 | Shutoff |
| TD travel mm: 6.00...7.20 | electromagnet>Volt: 12 |
| > mm: (6.00...7.20) | 3rd speed 1/min: 1250 |
| Timing valve Volt: - | Charge press. hPa: 1000 |
| electromagnet>Volt: 12.0 | Supply-pump |
| 2nd speed 1/min: 2000 | pressure> bar: 6.50...7.10 |
| Charge press hPa: 1000 | > bar: - |
| TD travel mm: 0.00...1.20 | Timing valve Volt: - |
| > mm: (0.00...1.20) | Shutoff |
| Timing valve Volt: 12.0 | electromagnet>Volt: 12 |
| Shutoff | 4th speed 1/min: 1750 |
| electromagnet>Volt: 12.0 | Charge press. hPa: 1000 |
| 3rd speed 1/min: 750 | Supply-pump |
| Charge press hPa: 1000 | pressure> bar: 7.30...7.90 |
| TD travel mm: 7.80...8.60 | > bar: - |
| > mm: (7.50...8.90) | Timing valve Volt: - |
| Timing valve Volt: - | Shutoff |
| Shutoff | electromagnet>Volt: 12.0 |
| electromagnet>Volt: 12.0 | Overflow quantity at overflow valve: |
| 3rd speed 1/min: 750 | 1st speed 1/min: 500 |
| Charge press hPa: 1000 | Charge press. hPa: 1000 |
| TD travel mm: 9.30...9.70 | Timing valve Volt: - |
| > mm: (8.80...10.20) | Shutoff |
| Timing valve Volt: - | electromagnet>Volt: 12.0 |
| Shutoff | Overflow : 50.00...94.40 |
| electromagnet>Volt: 12.0 | quantity> cm ³ /10s: (35.00...109.4) |
| 4th speed 1/min: 1250 | 2nd speed 1/min: 2150 |
| Charge press hPa: 1000 | Charge press. hPa: 1000 |
| TD travel mm: 11.1...11.9 | Timing valve Volt: - |
| > mm: (10.8...12.2) | Shutoff |
| Timing valve Volt: - | electromagnet>Volt: 12.0 |
| Shutoff | Overflow : 77.70...161.10 |
| electromagnet>Volt: 12.0 | quantity> cm ³ /10s: (62.70...176.10) |
| Supply-pump pressure characteristic: | Delivery-quant. and breakaway char.: |
| 1st speed 1/min: 300 | 1nd speed 1/min: 750 |
| Charge press. hPa: 1000 | Charge-air pressure-setting |
| Supply-pump | point> hPa: 350 |
| pressure> bar: 5.00...5.60 | Timing valve Volt: - |
| > bar: - | Shutoff |
| Timing valve Volt: - | electromagnet>Volt: 12.0 |
| Shutoff | Del. quantity cm ³ /: 45.0...46.0 |
| electromagnet>Volt: 12 | > 1000s.: (42.5...48.5) |
| 2nd speed 1/min: 750 | 2nd speed 1/min: 2750 |
| Charge press. hPa: 1000 | Charge press. hPa: 1000 |
| Supply-pump | Timing valve Volt: - |
| pressure> bar: 5.70...6.30 | Shutoff |
| > bar: (5.60...6.80) | electromagnet Volt: 12.0 |
| | Del. quantity cm ³ /: 0.00...6.00 |
| | > 1000s.: (0.00...6.00) |
| | 3rd speed 1/min: 2575 |
| | Charge press. hPa: 1000 |
| | Timing valve Volt: - |
| | Shutoff |
| | electromagnet>Volt: 12.0 |

Del. quantity cm³/: 12.0...16.0
 > 1000S.: (10.0...18.00)
 4th speed 1/min: 2375
 Charge press. hPa: 1000
 Timing valve Volt: -
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 34.0...44.0
 > 1000S.: (33.0...45.0)
 5th speed 1/min: 2150
 Charge press. hPa: 1000
 Timing valve Volt: -
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 49.10...51.10
 > 1000S.: (47.90...52.30)
 6th speed 1/min: 2000
 Charge press. hPa: 1000
 Timing valve Volt: -
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 51.0...53.0
 > 1000S.: (49.8...54.2)
 7th speed 1/min: 1250
 Charge press. hPa: 1000
 Timing valve Volt: -
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 53.5...54.5
 > 1000S.: (51.8...56.2)
 8th speed 1/min: 500
 Charge press. hPa: 1000
 Timing valve Volt: -
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 46.80...49.80
 > 1000S.: (45.30...51.30)
 9th speed 1/min: 500
 Charge press. hPa: -
 Timing valve Volt: -
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 36.00...37.00
 > 1000S.: (33.50...39.50)

Mech. shutoff:

1st speed 1/min: 2000
 Charge press. hPa: 1000
 Del. quantity cm³/: 0.00...3.00
 > 1000S.: (0.00...3.00)
 Shutoff
 electromagnet>volt: 12.0
 Timing valve Volt: -

Electr. shutoff:

1st speed 1/min: 400
 Charge press. hPa: -

Del. quantity cm³/: 0.00...3.00
 > 1000S.: (0.00...3.00)
 Shutoff
 electromagnet>volt: -
 Timing valve Volt: -

Damper set qty.:

LFG-setting:

Idle delivery:

1st speed 1/min: 440
 Timing valve Volt: -
 Shutoff
 electromagnet Volt: 12.0
 Del. quantity cm³/: 15.0...17.0
 > 1000S.: (12.0...20.0)

High Idle:

1st speed 1/mi: 490
 Timing valve Volt: -
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 15.0...17.0
 > 1000S.: (12.0...20.0)

Rest delivery:

1st speed 1/min: 490
 Timing valve Volt: -
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 8.0...9.0
 > 1000S.: (6.5...10.5)

Part-load del.at 3rd inj.-qty.
 terza fermo della portata
 stop (EGR set)
 scarico) (ARF)
 gaz d'échappement-ARF)
 Spacing mm: 12.0

1st speed 1/min: 1250
 Charge press. hPa: 1000
 Timing valve Volt: -
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 24.00...26.00
 > 1000S.: (21.00...29.00)
 2nd speed 1/min: 500
 Charge press. hPa: 1000
 Timing valve Volt: -
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 9.0...11.0
 > 1000S.: -

Automatic starting fuel delivery:

1st speed 1/min: 200

Timing valve Volt: -

Shutoff

electromagnet>Volt: 12.0

Del. quantity cm³/: 50.00...56.00
> 1000S.: (45.50...60.50)

2nd speed 1/min: 380

Timing valve Volt: -

Shutoff

electromagnet>Volt: 12.0

Del. quantity cm³/: 25.00...45.00
> 1000S.: (25.00...45.00)

4th speed 1/min: 150

Timing valve Volt: -

Shutoff

electromagnet>Volt: 12.0

Del. quantity cm³/: 37.00...67.00
> 1000S.: (37.00...67.00)

Shutoff electromagnet:

Cut-in

>min voltage : 10.0

Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: 3.2...3.4

KF mm: KOT

MS mm: 1.1...1.5

XK mm: ARF 3 =1,9V

XL mm: ARF 4 =1,0V

Ya mm: 25.8...29.8

Yb mm: 36.1...50.1

Ajustement Potentiometer:

Angle for
pot. > °: 35.0

Supply voltage
pot. > volt: 5.0

Remarks:

:

:

Ya = Distance between VE flange and
speed-control lever in idle
position

Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position

Measurement point = edge of control

lever on distributor-head end

Permissible port/port scatter with
stop test, electrical = max. 5.0
ccm/1000 S.

Permissible port/port scatter with
stop test, mechanical = max. 5.0
ccm/1000 S.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEU
 Edition : 04.08.95
 replaces : -
 Calibrating oil : ISO-4113
 Injection pump : VE4/9F2250R445-3
 Type number : 0 460 494 370
 Customer Part-No. :

Customer-specific information
 Customer : PSA

Engine : XUD 9 TF-L

Power KW: 67

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
 return>temp. > °C
 with>thermometer> : 40.00...48.00
 Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly> : 1 688 901 022

Opening
 Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
 x Wall>thickness : 2.00
 x Length> mm: 450

Start of delivery
 Prestroke mm: -
 > (from BDC): -

Indicator setting
 Piston stroke> mm: 0,3
 Outlet> : A

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500

Charge press. hPa: 1000
 Setting value mm: 3.90...4.30
 Shutoff
 electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1500
 Charge press hPa: 1000
 Setting value bar: 5.40...6.00
 Shutoff
 electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250
 Charge press. hPa: 1000
 Del. quantity cm³/
 > 1000S.: 54.00...55.00
 Shutoff
 electromagnet>Volt: 12
 Dispersion cm³/: 2.0
 > 1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
 Del. quantity cm³/
 > 1000S.: 36.5...37.5
 Shutoff
 electromagnet>Volt: 12.0

Low-idle speed regulation

Speed 1/min: 440
 Del. quantity cm³/
 > 1000S.: 15.0...17.0
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 2.0
 > 1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 490
 Del. quantity cm³/
 > 1000S.: 8.00...9.00
 Shutoff
 electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2575
 Charge press hPa: 1000
 Del. quantity cm³/
 > 1000S.: 12.0...16.0
 Shutoff
 electromagnet>Volt: 12

Start:

Speed 1/min: 150
Del. quantity cm³/: 37.00...67.00
mind> 1000S.: 37.00
Shutoff
electromagnet>Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 900
Charge press hPa: 1000
TD travel mm: 0.80...1.60
> mm: (0.50...1.90)
electromagnet>Volt: 12.0
2nd speed 1/min: 1500
Charge press hPa: 1000
TD travel mm: 3.90...4.30
> mm: (3.40...4.80)
Shutoff
electromagnet>Volt: 12.0
3rd speed 1/min: 2000
Charge press hPa: 1000
TD travel mm: 6.10...6.90
> mm: (5.80...7.20)
Shutoff
electromagnet>Volt: 12.0

Supply-pump pressure characteristic:

1st speed 1/min: 900
Charge press. hPa: 1000
Supply-pump
pressure> bar: 3.90...4.50
> bar: -
Shutoff
electromagnet>Volt: 12
2nd speed 1/min: 1500
Charge press. hPa: 1000
Supply-pump
pressure> bar: 5.40...6.00
> bar: -
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 2000
Charge press. hPa: 1000
Supply-pump
pressure> bar: 6.50...7.10
> bar: -
Shutoff
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0

Overflow : 41.60...83.30
quantity> cm³/10s: (26.60...98.3)
2nd speed 1/min: 2150
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Overflow : 55.50...138.80
quantity> cm³/10s: (40.50...153.80)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 750
charge-air pressure-setting
point> hPa: 350
LDA-stroke mm: 5.9
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 45.5...46.5
> 1000S.: (43.0...49.0)
2nd speed 1/min: 2750
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12.0
Del. quantity cm³/: 0.00...6.00
> 1000S.: (0.00...6.00)
3rd speed 1/min: 2575
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 12.0...16.0
> 1000S.: (10.0...18.00)
4th speed 1/min: 2375
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 34.0...44.0
> 1000S.: (33.0...45.0)
5th speed 1/min: 2150
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 49.10...51.10
> 1000S.: (47.90...52.30)
6th speed 1/min: 2000
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 51.0...53.0
> 1000S.: (49.8...54.2)
7th speed 1/min: 1250
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 54.0...55.0
> 1000S.: (52.3...56.7)
8th speed 1/min: 500
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0

Del. quantity cm³/: 46.80...49.80
> 1000S.: (45.30...51.30)
9th speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 36.50...37.50
> 1000S.: (34.00...40.00)

Mech. shutoff:

1st speed 1/min: 2000
Charge press. hPa: 1000
Del. quantity cm³/: 0.00...3.00
> 1000S.: (0.00...3.00)
Shutoff
electromagnet>volt: 12.0

Electr. shutoff:

1st speed 1/min: 400
Del. quantity cm³/: 0.00...3.00
> 1000S.: (0.00...3.00)
Shutoff
electromagnet>volt: -

Damper set qty.:

LFG-setting:

Idle delivery:

1st speed 1/min: 440
Shutoff
electromagnet Volt: 12.0
Del. quantity cm³/: 15.0...17.0
> 1000S.: (12.0...20.0)

High Idle:

1st speed 1/mi: 490
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 15.0...17.0
> 1000S.: (12.0...20.0)

Rest delivery:

1st speed 1/min: 490
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 8.0...9.0
> 1000S.: (6.5...10.5)

Automatic starting fuel delivery:

1st speed 1/min: 200
Shutoff
electromagnet>Volt: 12.0

Del. quantity cm³/: 45.50...60.50
> 1000S.: -
2nd speed 1/min: 380
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 25.00...45.00
> 1000S.: (25.00...45.00)

4th speed 1/min: 150
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 37.00...67.00
> 1000S.: (37.00...67.00)

Shutoff electromagnet:

Cut-in
>min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

| Designation | |
|-------------|-----------------|
| K | mm: 3.2...3.4 |
| KF | mm: KOT |
| MS | mm: 1.1...1.5 |
| Ya | mm: 25.8...29.8 |
| Yb | mm: 68.0...82.0 |

Remarks:

:
:
Ya = Distance between VE flange and speed-control lever in idle position

Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position

Measurement point = edge of control lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEU
 Edition : 04.08.95
 replaces : -
 Calibrating oil : ISO-4113

Injection pump : VE4/9F2250R513-1
 Type number : 0 460 494 371
 Customer Part-No. :

Customer-specific information
 Customer : PSA

Engine : XUD 9 TF-Y VAN

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
 return>temp. > °C
 with>thermometer> : 40.00...48.00
 Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly> : 1 688 901 022

Opening
 Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
 x Wall>thickness : 2.00
 x Length> mm: 450

Start of delivery
 Prestroke mm: -
 > (from BDC): -

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
 Charge press. hPa: 1000
 Setting value mm: 3.40...3.80
 Shutoff
 electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1250
 Charge press. hPa: 1000
 Setting value bar: 5.30...5.90
 Shutoff
 electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250
 Charge press. hPa: 1000
 Del. quantity cm3/
 > 1000S.: 53.50...54.50
 Shutoff
 electromagnet>Volt: 12
 Dispersion cm3/: 2.0
 > 1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
 Del. quantity cm3/
 > 1000S.: 36.5...37.5
 Shutoff
 electromagnet>Volt: 12.0

Low-idle speed regulation

Speed 1/min: 440
 Del. quantity cm3/
 > 1000S.: 15.0...17.0
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 2.0
 > 1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 490
 Del. quantity cm3/
 > 1000S.: 8.00...9.00
 Shutoff
 electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2575
 Charge press. hPa: 1000
 Del. quantity cm3/
 > 1000S.: 12.0...16.0
 Shutoff
 electromagnet>Volt: 12

Start:

Speed 1/min: 150
 Del. quantity cm3/: 37.00...67.00
 mind> 1000S.: 37.00
 Shutoff
 electromagnet>Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250
Charge press hPa: -
Inj.-qty. cm³/difference > 1000s.: -12.0...14.0 *
Shutoff electromagnet>Volt: 12.0
TD-travel dif.measurement

1.Speed 1/min: 1250
Charge press hPa: -
TD-travel difference > mm: -0.9...1.1 *
Shutoff electromagnet>Volt: 12.0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 750
Charge press hPa: 1000
TD travel mm: 1.10...1.90
> mm: (0.80...2.20)
electromagnet>Volt: 12.0
2nd speed 1/min: 1250
Charge press hPa: 1000
TD travel mm: 3.40...3.80
> mm: (2.90...4.30)
Shutoff electromagnet>Volt: 12.0
3rd speed 1/min: 2000
Charge press hPa: 1000
TD travel mm: 6.10...6.90
> mm: (5.80...7.20)
Shutoff electromagnet>Volt: 12.0

Supply-pump pressure characteristic:

1st speed 1/min: 750
Charge press. hPa: 1000
Supply-pump pressure> bar: 4.00...4.60
> bar: -
Shutoff electromagnet>Volt: 12
2nd speed 1/min: 1250
Charge press. hPa: 1000
Supply-pump pressure> bar: 5.30...5.90
> bar: -
Shutoff electromagnet>Volt: 12
3rd speed 1/min: 2000
Charge press. hPa: 1000

Supply-pump pressure> bar: 7.20...7.80
> bar: -

Shutoff electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: 1000
Shutoff electromagnet>Volt: 12.0
Overflow : 41.60...83.30
quantity> cm³/10s: (26.60...98.3)
2nd speed 1/min: 2150
Charge press. hPa: 1000
Shutoff electromagnet>Volt: 12.0
Overflow : 55.50...138.80
quantity> cm³/10s: (40.50...153.80)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 750
Charge-air pressure-setting point> hPa: 350
LDA-stroke mm: 5.9
Shutoff electromagnet>Volt: 12.0
Del. quantity cm³: 45.5...46.5
> 1000s.: (43.0...49.0)
2nd speed 1/min: 2750
Charge press. hPa: 1000
Shutoff electromagnet Volt: 12.0
Del. quantity cm³: 0.00...6.00
> 1000s.: (0.00...6.00)
3rd speed 1/min: 2575
Charge press. hPa: 1000
Shutoff electromagnet>Volt: 12.0
Del. quantity cm³: 12.0...16.0
> 1000s.: (10.0...18.00)
4th speed 1/min: 2375
Charge press. hPa: 1000
Shutoff electromagnet>Volt: 12.0
Del. quantity cm³: 34.0...44.0
> 1000s.: (33.0...45.0)
5th speed 1/min: 2150
Charge press. hPa: 1000
Shutoff electromagnet>Volt: 12.0
Del. quantity cm³: 49.10...51.10
> 1000s.: (47.90...52.30)
6th speed 1/min: 2000
Charge press. hPa: 1000
Shutoff electromagnet>Volt: 12.0

Del. quantity cm³/: 51.0...53.0
 > 1000S.: (49.8...54.2)
 7th speed 1/min: 1250
 Charge press. hPa: 1000
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 54.0...55.0
 > 1000S.: (52.3...56.7)
 8th speed 1/min: 500
 Charge press. hPa: 1000
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 46.80...49.80
 > 1000S.: (45.30...51.30)
 9th speed 1/min: 500
 Charge press. hPa: -
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 36.50...37.50
 > 1000S.: (34.00...40.00)

Mech. shutoff:
 1st speed 1/min: 2000
 Charge press. hPa: 1000
 Del. quantity cm³/: 0.00...3.00
 > 1000S.: (0.00...3.00)
 Shutoff
 electromagnet>volt: 12.0

Electr. shutoff:
 1st speed 1/min: 400
 Del. quantity cm³/: 0.00...3.00
 > 1000S.: (0.00...3.00)
 Shutoff
 electromagnet>volt: -

Damper set qty.:

LFG-setting:

Idle delivery:
 1st speed 1/min: 440
 Shutoff
 electromagnet Volt: 12.0
 Del. quantity cm³/: 15.0...17.0
 > 1000S.: (12.0...20.0)

High Idle:
 1st speed 1/mi: 490
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 15.0...17.0
 > 1000S.: (12.0...20.0)

Rest delivery:

1st speed 1/min: 490
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 8.0...9.0
 > 1000S.: (6.5...10.5)

Load-dependent start of delivery:
 Inj.-qty.dif.measurement:
 1st speed 1/min: 1250
 Charge press. hPa: -
 Inj.-qty. cm³/ : 2.0...8.0 Z"
 difference> 1000S.: -
 Shutoff
 electromagnet>Volt: 12.0

TD-travel dif.measurement:
 correttore anticipo iniezione (SV):
 1st speed 1/min: 1250
 Charge press. hPa: -
 TD-travel : -2.1...2.5
 difference mm: -(1.6...3.0)
 Shutoff
 electromagnet>Volt: 12.0

SP press.-dif.measurement:
 pompa di mandata (FP):
 1st speed 1/min: 1250
 Charge press. hPa: -
 Supply pump-
 pressure > : -0.9...1.3
 difference bar: -(0.7...1.5)
 Shutoff
 electromagnet>Volt: 12.0

Part-load del.at 3rd inj.-qty.
 terza fermo della portata
 stop (EGR set)
 scarico) (ARF)
 gaz d'échappement-ARF)

1st speed 1/min: 1250
 Charge press. hPa: 1000
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 22.8...24.8
 > 1000S.: (19.8...27.8)

Automatic starting fuel delivery:
 1st speed 1/min: 200
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 45.50...60.50
 > 1000S.: -

2nd speed 1/min: 380
 Shutoff
 electromagnet>Volt: 12.0

Del. quantity cm³/: 25.00...45.00
> 1000S.: (25.00...45.00)

4th speed 1/min: 150
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 37.00...67.00
> 1000S.: (37.00...67.00)

Shutoff electromagnet:

Cut-in
>min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

| | |
|----|-----------------|
| K | mm: 3.2...3.4 |
| KF | mm: 5.6...6.0 |
| MS | mm: 1.1...1.5 |
| Ya | mm: 28.8...32.8 |
| Yb | mm: 69.2...80.8 |

Remarks:

:

Ya = Distance between VE flange and
speed-control lever in idle
position

Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position

Measurement point = edge of control
lever on distributor-head end

Permissible port/port scatter with
stop test, mechanical = max. 5.0
ccm/1000 S.

Permissible port/port scatter with
stop test, electrical = max. 5.0
ccm/1000 S.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VW
 Edition : 07.08.95
 replaces : -
 Calibrating oil : ISO-4113

Injection pump : VE4/9F2300R597-4
 Type number : 0 460 494 373
 Customer Part-No. :

Customer-specific information
 Customer : VW

Engine : 1,9 l UD B4

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
 return>temp. > °C
 with>thermometer> : 40.00...48.00
 Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly> : 1 688 901 000

Opening
 Pressure> bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
 x Wall>thickness : 2.00
 x Length> mm: 840

Start of delivery
 Prestroke mm: -
 > (from BDC): -

Indicator setting
 Piston stroke> mm: 0.8
 Outlet> : A

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
 Charge press. hPa: 750
 Setting value mm: 4.30...4.50

Shutoff
 electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1250
 Charge press. hPa: 750
 Setting value bar: 5.40...6.00
 Shutoff
 electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250
 Charge press. hPa: 750
 Del. quantity cm³/
 > 1000S.: 50.00...51.00
 Shutoff
 electromagnet>Volt: 12
 Dispersion cm³/: 2.5
 > 1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 450
 Del. quantity cm³/
 > 1000S.: 37.2...43.2
 Shutoff
 electromagnet>Volt: 12.0

Residual-Delivery Setting

Speed 1/min: 550
 Del. quantity cm³/
 > 1000S.: 7.00...8.00
 Shutoff
 electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2600
 Charge press. hPa: 750
 Del. quantity cm³/
 > 1000S.: 9.00...13.00
 Shutoff
 electromagnet>Volt: 12

Start:

Speed 1/min: 100
 Del. quantity cm³/: 32.5...47.5
 mind> 1000S.: 32.5
 Shutoff
 electromagnet>Volt: 12.0

Load-dependent start of delivery:
 Inj.-qty.dif.measurement:

Speed 1/min: 1250
 Inj.-qty. cm³/

difference> 1000s.: -7.0...11.0 *

 Shutoff

 electromagnet>Volt: 12

 TD-travel dif.measurement

1.Speed 1/min: 1250

 TD-travel

 difference> mm: -1.9...2.1 *

 Shutoff

 electromagnet>Volt: 12

Inspection-pump test specifications

 Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2100

 Charge press hPa: 750

 TD travel mm: 8.00...8.60

 > mm: (7.50...9.10)

 Shutoff

 electromagnet>Volt: 12

 3rd speed 1/min: 1250

 Charge press hPa: 750

 TD travel mm: 4.30...4.50

 > mm: (3.60...5.20)

 Shutoff

 electromagnet>Volt: 12

 4th speed 1/min: 750

 Charge press hPa: 750

 TD travel mm: 1.50...2.10

 > mm: (1.00...2.60)

 Shutoff

 electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 750

 Charge press. hPa: 750

 Supply-pump

 pressure> bar: 4.30...4.90

 > bar: -

 Shutoff

 electromagnet>Volt: 12

 2nd speed 1/min: 1250

 Charge press. hPa: 750

 Supply-pump

 pressure> bar: 5.40...6.00

 > bar: -

 Shutoff

 electromagnet>Volt: 12

 3rd speed 1/min: 2100

 Charge press. hPa: 750

 Supply-pump

 pressure> bar: 7.40...8.00

 > bar: -

 Shutoff

 electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 1250

 Charge press. hPa: 750

 Shutoff

 electromagnet>Volt: 12

 Overflow : 41.70...86.10

 quantity> cm³/10s: (26.70...101.10)

 2nd speed 1/min: 2100

 Charge press. hPa: 750

 Shutoff

 electromagnet>Volt: 12

 Overflow : 55.60...152.90

 quantity> cm³/10s: (40.60...167.90)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 2750

 Charge press. hPa: 750

 Shutoff

 electromagnet Volt: 12

 Del. quantity cm³: 0.00...3.00

 > 1000s.: (0.00...3.00)

 5th speed 1/min: 2600

 Charge press. hPa: 750

 Shutoff

 electromagnet>Volt: 12

 Del. quantity cm³: 9.00...13.00

 > 1000s.: (7.00...15.00)

 8th speed 1/min: 2400

 Charge press. hPa: 750

 Shutoff

 electromagnet>Volt: 12

 Del. quantity cm³: 32.50...42.50

 > 1000s.: (31.50...43.50)

 9th speed 1/min: 2100

 Charge press. hPa: 750

 Shutoff

 electromagnet>Volt: 12

 Del. quantity cm³: 42.00...44.00

 > 1000s.: (40.80...45.20)

 12th speed 1/min: 1250

 Charge press. hPa: 750

 Shutoff

 electromagnet>Volt: 12

 Del. quantity cm³: 50.00...51.00

 > 1000s.: (48.3...52.7)

 21th speed 1/min: 450

 Charge press. hPa: -

 Shutoff

 electromagnet>Volt: 12

 Del. quantity cm³: 37.20...43.20

 > 1000s.: (34.70...45.70)

Electr. shutoff:

1st speed 1/min: 450

 Del. quantity cm³: 0.00...3.00

| | |
|--|--|
| > 1000S.: (0.00...3.00) | KSB/AFB |
| Shutoff | valve > Volt: 12.0 |
| electromagnet>volt: - | Shutoff |
| Damper set qty.: - | electromagnet>Volt: 12.0 |
| LFG-setting: | SP press.-dif.measurement: |
| Idle delivery: | pompa di mandata (FP): |
| 1st speed 1/min: 450 | 1st speed 1/min: 1250 |
| Shutoff | Charge press. hPa: - |
| electromagnet Volt: 12 | Supply pump- |
| Del. quantity cm ³ /: 16.00...18.00 | pressure > : -0.1...0.3 " |
| > 1000S.: (13.00...21.00) | difference> bar: - |
| High Idle: | Shutoff |
| 1st speed 1/min: 500 | electromagnet>Volt: 12 |
| Shutoff | P _{ext} -load del.at 3rd inj.-qty. |
| electromagnet>Volt: 12 | terza ferma della portata |
| Del. quantity cm ³ /: 16.00...18.00 | stop (EGR set) |
| > 1000S.: (13.00...21.00) | scarico) (ARF) |
| Rest delivery: | gaz d'échappement-ARF) |
| 1st speed 1/min: 550 | Spacing mm: 12.0 |
| Shutoff | 1st speed 1/min: 1000 |
| electromagnet>Volt: 12 | Charge press. hPa: 750 |
| Del. quantity cm ³ /: 7.00...8.00 | Shutoff |
| > 1000S.: (5.50...9.50) | electromagnet>Volt: 12 |
| Load-dependent start of delivery: | Del. quantity cm ³ /: 34.00...36.00 |
| Inj.-qty.dif.measurement: | > 1000S.: (32.00...38.00) |
| 1st speed 1/min: 1250 | Automatic starting fuel delivery: |
| Charge press. hPa: - | 1st speed 1/min: 180 |
| Inj.-qty. cm ³ / : -4.5...6.5 " | Shutoff |
| difference> 1000S.: - | electromagnet>Volt: 12 |
| Shutoff | Del. quantity cm ³ /: 35.00...55.00 |
| electromagnet>Volt: 12 | > 1000S.: (35.00...55.00) |
| 2nd speed 1/min: 1250 | 2nd speed 1/min: 380 |
| Charge press. hPa: - | Shutoff |
| Inj.-qty. cm ³ /: 0.0...3.0 Z' | electromagnet>Volt: 12 |
| difference> 1000S.: - | Del. quantity cm ³ /: 31.00...51.00 |
| Shutoff | > 1000S.: (31.00...51.00) |
| electromagnet Volt: 12.0 | 3rd speed 1/min: 100 |
| TD-travel dif.measurement: | Shutoff |
| correttore anticipo iniezione (SV): | electromagnet>Volt: 12 |
| 1st speed 1/min: 1250 | Del. quantity cm ³ /: 37.00...43.00 |
| Charge press. hPa: - | > 1000S.: (32.50...47.50) |
| TD-travel : -2.5...2.9 ' | Shutoff electromagnet: |
| difference> mm: - | Cut-in |
| Shutoff | >min voltage : 10.0 |
| electromagnet>Volt: 12 | Rated voltage : 12.0 |
| 2nd speed 1/min: 1250 | Mounting and assembly dimensions: |
| Charge press. hPa: ALFB | Designation |
| TD-travel : 0.00...0.60 | K mm: 3.6...3.8 |
| difference> mm: - | KF mm: KOT |

| | |
|----|-----------------|
| MS | mm: 1.0...1.4 |
| XK | mm: MIKROSCH. |
| XL | mm: A=0.8...3.0 |
| Ya | mm: 37.6...41.6 |
| Yb | mm: 49.9...62.8 |

Remarks:

:

:

Ya = Distance between VE flange and speed-control lever in idle position

Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position

Measurement point = edge of control lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FORD
 Edition : 08.08.95
 replaces : -
 Calibrating oil : ISO-4113

 Injection pump : VE4/9F2400R299-2
 Type number : 0 460 494 374
 Customer Part-No. :

Customer-specific information

Customer : FORD

Engine : 1.8 IDI

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
 return>temp. > °C
 with>thermometer> : 40.00...48.00
 Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly> : 1 688 901 022

Opening
 Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
 x Wall>thickness : 2.00
 x Length> mm: 450

Start of delivery
 Prestroke mm: -
 > (from BDC): -

Start of delivery block
 Piston stroke mm: 0.8
 > mm: +0.02(0.05)
 Outlet > : B

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500
 Setting value mm: 6.00...6.40

AFB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1500
 Setting value bar: 6.30...6.90
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1750
 Del. quantity cm³/
 > 1000s.: 27.4...27.8

KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0
 Dispersion cm³/: 2.0
 > 1000s.: (3.0)

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Residual-Delivery Setting

Speed 1/min: 530
 Del. quantity cm³/
 > 1000s.: 1.00...5.00

KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2675
 Del. quantity cm³/
 > 1000s.: 8.00...14.00

KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12

Start:

Speed 1/min: 100
 Del. quantity cm³/: 53.00...73.00
 mind> 1000s.: 51.00
 KSB/AFB
 Valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12

Load-dependent start of delivery:
 Inj.-qty.dif.measurement:

Speed 1/min: 1250

Inj.-qty. cm³/
 difference> 1000S.: -3.5...11.5 *
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12
 TD-travel dif.measurement

1.Speed 1/min: 1250
 TD-travel
 difference> mm: - 0.5...0.7 *
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 400
 TD travel mm: 3.40...3.60 A
 > mm: (2.80...4.30)
 KSB/AFB
 valve > Volt: -
 electromagnet>Volt: 12.0
 2nd speed 1/min: 1000
 TD travel mm: 2.8...5.2 B
 > mm: -
 KSB/AFB
 valve > Volt: -
 Shutoff
 electromagnet>Volt: 12
 3rd speed 1/min: 800
 TD travel mm: 1.80...2.60
 > mm: (1.50...2.90)
 KSB/AFB
 valve > Volt: 12
 Shutoff
 electromagnet>Volt: 12
 4th speed 1/min: 1500
 TD travel mm: 6.00...6.40
 > mm: (5.70...6.70)
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0
 5th speed 1/min: 2000
 TD travel mm: 8.60...9.40
 > mm: (8.30...9.70)
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0

Supply-pump pressure characteristic:

1st speed 1/min: 750
 Supply-pump

pressure> bar: 3.90...4.50
 > bar: -
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0
 2nd speed 1/min: 1500
 Supply-pump
 pressure> bar: 6.30...6.90
 > bar: -
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0
 3rd speed 1/min: 2000
 Supply-pump
 pressure> bar: 7.70...8.30
 > bar: -
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0

Overflow quantity at overflow valve:

1st speed 1/min: 750
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0
 Overflow : 41.70...86.10
 quantity> cm³/10s: (26.70...101.10)
 2nd speed 1/min: 2400
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0
 Overflow : 55.60...139.00
 quantity> cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 2950
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet Volt: 12.0
 Del. quantity cm³: 0.00...2.00
 > 1000S.: -
 3rd speed 1/min: 2675
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³: 8.00...14.0
 > 1000S.: (6.50...15.5)
 4th speed 1/min: 2550
 KSB/AFB
 valve > Volt: 12.0

Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 18.0...26.0
 > 1000S.: (16.0...26.0)
 5th speed 1/min: 2400
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 25.7...27.7
 > 1000S.: (24.7...28.7)
 6th speed 1/min: 1750
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 27.4...27.8
 > 1000S.: (25.9...29.3)
 7th speed 1/min: 1000
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 26.7...29.7
 > 1000S.: (25.9...30.5)
 8th speed 1/min: 750
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 26.00...29.00
 > 1000S.: (25.90...30.50)

Electr. shutoff:

1st speed 1/min: 425
 Del. quantity cm³/: 0.00...3.00
 > 1000S.: (0.00...3.00)
 Shutoff
 electromagnet>volt: -
 KSB/AFB
 valve > Volt: 12.0

Damper set qty.:

LFG-setting:

Idle delivery:

1st speed 1/min: 425
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet Volt: 12.0
 Del. quantity cm³/: 10.00...14.00
 > 1000S.: (6.40...17.60)

High Idle:

1st speed 1/mi: 590
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 7.00...11.00
 > 1000S.: (3.40...14.60)

Rest delivery:

1st speed 1/min: 530
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 1.00...5.00
 > 1000S.: (0.20...5.80)

Load-dependent start of delivery: Inj.-qty.dif.measurement:

1st speed 1/min: 1250
 Inj.-qty. cm³/ : -5.0...7.0 "
 difference> 1000S.: -
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0
 2nd speed 1/min: 1250
 Inj.-qty. cm³/: 2.00...8.0 Z'
 difference> 1000S.: -
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet Volt: 12.0

TD-travel dif.measurement:
 correttore anticipo iniezione (SV):
 1st speed 1/min: 1250
 TD-travel : -0.5...1.3 '
 difference mm: -
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0

SP press.-dif.measurement:
 pompa di mandata (FP):
 1st speed 1/min: 1250
 Supply pump-
 pressure > : - 0.1...0.3 "
 difference bar: -
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0

Part-load del.at 3rd inj.-qty.
 terza fermo della portata

| | | | |
|--|-----------------|-------------------------------------|-----------------|
| stop (EGR set) | | Yb | mm: 60.7...69.3 |
| scarico) (ARF) | | Remarks: | |
| gaz d'échappement-ARF) | | | : |
| Spacing mm: 12.0 | | | : |
| 1st speed 1/min: 1200 | | Z = Absolute delivery | |
| KSB/AFB | | | |
| valve > Volt: 12.0 | | Ya = Distance between VE flange and | |
| Shutoff | | speed-control lever in idle | |
| electromagnet>Volt: 12.0 | | position | |
| Del. quantity cm ³ /: 11.3...12.3 * | | Measurement point = edge of control | |
| > 1000S.: (9.3...14.3) | | lever on drive end | |
| Automatic starting fuel delivery: | | | |
| 1st speed 1/min: 200 | | Yb = Distance between VE flange and | |
| KSB/AFB | | speed-control lever in rated speed | |
| valve > Volt: 12.0 | | position | |
| Shutoff | | Measurement point = edge of control | |
| electromagnet>Volt: 12.0 | | lever on distributor-head end | |
| Del. quantity cm ³ /: 60.00...90.00 | | | |
| > 1000S.: LFG=LL/VH-VL | | | |
| 2nd speed 1/min: 500 | | | |
| KSB/AFB | | | |
| valve > Volt: 12.0 | | | |
| Shutoff | | | |
| electromagnet>Volt: 12.0 | | | |
| Del. quantity cm ³ /: 24.00...38.00 | | | |
| > 1000S.: LFG=LL/VH-VL | | | |
| 3rd speed 1/min: 275 | | | |
| KSB/AFB | | | |
| valve > Volt: 12.0 | | | |
| Shutoff | | | |
| electromagnet>Volt: 12.0 | | | |
| Del. quantity cm ³ /: 60..90 (VH/VL) | | | |
| > 1000S.: LFG=ERHÖHTER LL | | | |
| 4th speed 1/min: 100 | | | |
| KSB/AFB | | | |
| valve > Volt: 12.0 | | | |
| Shutoff | | | |
| electromagnet>Volt: 12.0 | | | |
| Del. quantity cm ³ /: 45...75 (VH/VL) | | | |
| > 1000S.: LFG ERHÖHTER LL | | | |
| Shutoff electromagnet: | | | |
| Cut-in | | | |
| >min voltage : 10.0 | | | |
| Rated voltage : 12.0 | | | |
| Mounting and assembly dimensions: | | | |
| Designation | | | |
| K | mm: K1 | | |
| KF | mm: 5.8...6.2 | | |
| MS | mm: 1.7...1.9 | | |
| Ya | mm: 31.6...35.6 | | |

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEU
 Edition : 31.07.95
 replaces : -
 Calibrating oil : ISO-4113

Injection pump : VE4/9F2250R601-1
 Type number : 0 460 494 382
 Customer Part-No. :

Customer-specific information
 Customer : PSA

Engine : XUD 9 BTF/L3 U6

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
 return>temp. > °C
 with>thermometer> : 40.00...48.00
 Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly> : 1 688 901 022

Opening
 Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
 x Wall>thickness : 2.00
 x Length> mm: 450

Start of delivery
 Prestroke mm: -
 > (from BDC): -

Indicator setting
 Piston stroke> mm: 0,3
 Outlet> : A

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
 Charge press. hPa: 1000
 Setting value mm: 9.30...9.70

Shutoff
 electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1250
 Charge press. hPa: 1000
 Setting value bar: 6.50...7.10
 Shutoff
 electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1200
 Charge press. hPa: 1000
 Del. quantity cm3/
 > 1000S.: 53.50...54.50
 Shutoff
 electromagnet>Volt: 12
 Dispersion cm3/: 2.0
 > 1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
 Del. quantity cm3/
 > 1000S.: 36.0...37.0
 Shutoff
 electromagnet>Volt: 12.0

Low-idle speed regulation

Speed 1/min: 440
 Del. quantity cm3/
 > 1000S.: 15.0...17.0
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 2.0
 > 1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 490
 Del. quantity cm3/
 > 1000S.: 8.00...9.00
 Shutoff
 electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2575
 Charge press. hPa: 1000
 Del. quantity cm3/
 > 1000S.: 12.0...16.0
 Shutoff
 electromagnet>Volt: 12

Start:

Speed 1/min: 150

Del. quantity cm³/: 37.00...67.00
 mind> 1000s.: 37.00
 Shutoff
 electromagnet>Volt: 12

 Inspection-pump test specifications
 Test specifications in parentheses

 Timing-device characteristic:

 1st speed 1/min: 300
 Charge press hPa: 1000
 TD travel mm: 6.00...7.20
 > mm: (6.00...7.20)
 Timing valve Volt: -
 electromagnet>Volt: 12.0
 2nd speed 1/min: 2000
 Charge press hPa: 1000
 TD travel mm: 0.00...1.20
 > mm: (0.00...1.20)
 Timing valve Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0
 3rd speed 1/min: 750
 Charge press hPa: 1000
 TD travel mm: 7.80...8.60
 > mm: (7.50...8.90)
 Timing valve Volt: -
 Shutoff
 electromagnet>Volt: 12.0
 4th speed 1/min: 1250
 Charge press hPa: 1000
 TD travel mm: 9.30...9.70
 > mm: (8.80...10.20)
 Timing valve Volt: -
 Shutoff
 electromagnet>Volt: 12.0
 5th speed 1/min: 1750
 Charge press. hPa: 1000
 TD travel mm: 11.1...11.9
 > mm: (10.8...12.2)
 Timing valve Volt: -
 Shutoff
 electromagnet>Volt: 12.0

 Supply-pump pressure characteristic:

 1st speed 1/min: 300
 Charge press. hPa: 1000
 Supply-pump
 pressure> bar: 5.00...5.60
 > bar: -
 Timing valve Volt: -
 Shutoff
 electromagnet>Volt: 12
 2nd speed 1/min: 750
 Charge press. hPa: 1000
 Supply-pump
 pressure> bar: 5.70...6.30
 > bar: (5.60...6.80)

Timing valve Volt: -
 Shutoff
 electromagnet>Volt: 12
 3rd speed 1/min: 1250
 Charge press. hPa: 1000
 Supply-pump
 pressure> bar: 6.50...7.10
 > bar: -
 Timing valve Volt: -
 Shutoff
 electromagnet>Volt: 12
 4th speed 1/min: 1750
 Charge press. hPa: 1000
 Supply-pump
 pressure> bar: 7.30...7.90
 > bar: -
 Timing valve Volt: -
 Shutoff
 electromagnet>Volt: 12.0

 Overflow quantity at overflow valve:

 1st speed 1/min: 500
 Charge press. hPa: 1000
 Timing valve Volt: -
 Shutoff
 electromagnet>Volt: 12.0
 Overflow : 50.00...94.40
 quantity> cm³/10s: (35.00...109.4)
 2nd speed 1/min: 2150
 Charge press. hPa: 1000
 Timing valve Volt: -
 Shutoff
 electromagnet>Volt: 12.0
 Overflow : 77.70...161.10
 quantity> cm³/10s: (62.70...176.10)

 Delivery-quant. and breakaway char.:

 1nd speed 1/min: 750
 Charge-air pressure-setting
 point> hPa: 350
 Timing valve Volt: -
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 45.0...46.0
 > 1000s.: (42.5...48.5)
 2nd speed 1/min: 2750
 Charge press. hPa: 1000
 Timing valve Volt: -
 Shutoff
 electromagnet Volt: 12.0
 Del. quantity cm³/: 0.00...6.00
 > 1000s.: (0.00...6.00)
 3rd speed 1/min: 2575
 Charge press. hPa: 1000
 Timing valve Volt: -
 Shutoff
 electromagnet>Volt: 12.0

| | |
|---|---|
| Del. quantity cm ³ /: 12.0...16.0 > 1000S.: (10.0...18.00) | Del. quantity cm ³ /: 0.00...3.00 > 1000S.: (0.00...3.00) |
| 4th speed 1/min: 2375 | Shutoff |
| Charge press. hPa: 1000 | electromagnet>volt: - |
| Timing valve Volt: - | Timing valve Volt: - |
| Shutoff | Damper set qty.: |
| electromagnet>Volt: 12.0 | LFG-setting: |
| Del. quantity cm ³ /: 34.0...44.0 > 1000S.: (33.0...45.0) | Idle delivery: |
| 5th speed 1/min: 2150 | 1st speed 1/min: 440 |
| Charge press. hPa: 1000 | Timing valve Volt: - |
| Timing valve Volt: - | Shutoff |
| Shutoff | electromagnet Volt: 12.0 |
| electromagnet>Volt: 12.0 | Del. quantity cm ³ /: 15.0...17.0 |
| Del. quantity cm ³ /: 49.10...51.10 > 1000S.: (47.90...52.30) | > 1000S.: (12.0...20.0) |
| 6th speed 1/min: 2000 | High Idle: |
| Charge press. hPa: 1000 | 1st speed 1/mi: 490 |
| Timing valve Volt: - | Timing valve Volt: - |
| Shutoff | Shutoff |
| electromagnet>Volt: 12.0 | electromagnet>Volt: 12.0 |
| Del. quantity cm ³ /: 51.0...53.0 > 1000S.: (49.8...54.2) | Del. quantity cm ³ /: 15.0...17.0 |
| 7th speed 1/min: 1250 | > 1000S.: (12.0...20.0) |
| Charge press. hPa: 1000 | Rest delivery: |
| Timing valve Volt: - | 1st speed 1/min: 490 |
| Shutoff | Timing valve Volt: - |
| electromagnet>Volt: 12.0 | Shutoff |
| Del. quantity cm ³ /: 53.5...54.5 > 1000S.: (51.8...56.2) | electromagnet>Volt: 12.0 |
| 8th speed 1/min: 500 | Del. quantity cm ³ /: 8.0...9.0 |
| Charge press. hPa: 1000 | > 1000S.: (6.5...10.5) |
| Timing valve Volt: - | Part-load del.at 3rd inj.-qty. |
| Shutoff | terza fermo della portata |
| electromagnet>Volt: 12.0 | stop (EGR set) |
| Del. quantity cm ³ /: 46.80...49.80 > 1000S.: (45.30...51.30) | scarico) (ARF) |
| 9th speed 1/min: 500 | gaz d'échappement-ARF) |
| Charge press. hPa: - | Spacing mm: 12.0 |
| Timing valve Volt: - | 1st speed 1/min: 1250 |
| Shutoff | Charge press. hPa: 1000 |
| electromagnet>Volt: 12.0 | Timing valve Volt: - |
| Del. quantity cm ³ /: 36.00...37.00 > 1000S.: (33.50...39.50) | Shutoff |
| Mech. shutoff: | electromagnet>Volt: 12.0 |
| 1st speed 1/min: 2000 | Del. quantity cm ³ /: 24.00...26.00 |
| Charge press. hPa: 1000 | > 1000S.: (21.00...29.00) |
| Del. quantity cm ³ /: 0.00...3.00 | 2nd speed 1/min: 500 |
| > 1000S.: (0.00...3.00) | Charge press. hPa: 1000 |
| Shutoff | Timing valve Volt: - |
| electromagnet>volt: 12.0 | Shutoff |
| Timing valve Volt: - | electromagnet>Volt: 12.0 |
| Electr. shutoff: | Del. quantity cm ³ /: 9.0...11.0 |
| 1st speed 1/min: 400 | > 1000S.: - |
| Charge press. hPa: - | Automatic starting fuel delivery: |

1st speed 1/min: 200
Timing valve Volt: -
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 50.00...56.00
> 1000S.: (45.50...60.50)

lever on distributor-head end

2nd speed 1/min: 380
Timing valve Volt: -
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 25.00...45.00
> 1000S.: (25.00...45.00)

Permissible port/port scatter with
stop test, electrical = max. 5.0
ccm/1000 S.

4th speed 1/min: 150
Timing valve Volt: -
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 37.00...67.00
> 1000S.: (37.00...67.00)

Permissible port/port scatter with
stop test, mechanical = max. 5.0
ccm/1000 S.

Shutoff electromagnet:

Cut-in
>min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

| Designation | |
|-------------|-----------------|
| K | mm: 3.2...3.4 |
| KF | mm: KOT |
| MS | mm: 1.1...1.5 |
| XK | mm: ARF 3 =1,9V |
| XL | mm: ARF 4 =1,0V |
| Ya | mm: 25.8...29.8 |
| Yb | mm: 36.1...50.1 |

Ajustement Potentiometer:

Angle for
pot. > °: 35.0
Supply voltage
pot. > volt: 5.0

Remarks:

:

Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEU
 Edition : 04.08.95
 replaces : -
 Calibrating oil : ISO-4113

Injection pump : VE4/9F2250R513-2
 Type number : 0 460 494 383
 Customer Part-No. :

Customer-specific information
 Customer : PSA

Engine : XUD 9 TF-Y

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
 return>temp. > °C
 with>thermometer> : 40.00...48.00
 Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly> : 1 688 901 022

Opening
 Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
 x Wall>thickness : 2.00
 x Length> mm: 450

Start of delivery
 Prestroke mm: -
 > (from BDC): -

Indicator setting
 Piston stroke> mm: 0.3
 Outlet> : A

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
 Charge press. hPa: 1000
 Setting value mm: 3.40...3.80

Shutoff
 electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1250
 Charge press. hPa: 1000
 Setting value bar: 5.30...5.90
 Shutoff
 electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250
 Charge press. hPa: 1000
 Del. quantity cm³/
 > 1000S.: 53.50...54.50
 Shutoff
 electromagnet>Volt: 12
 Dispersion cm³/ : 2.0
 > 1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
 Del. quantity cm³/
 > 1000S.: 36.50...37.50
 Shutoff
 electromagnet>Volt: 12

Residual-Delivery Setting

Speed 1/min: 490
 Del. quantity cm³/
 > 1000S.: 8.00...9.00
 Shutoff
 electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2575
 Charge press. hPa: 1000
 Del. quantity cm³/
 > 1000S.: 12.00...16.00
 Shutoff
 electromagnet>Volt: 12

Start:

Speed 1/min: 150
 Del. quantity cm³/ : 37.00...67.00
 mind> 1000S.: 37.00
 Shutoff
 electromagnet>Volt: 12

Load-dependent start of delivery:
 Inj.-qty.dif.measurement:

Speed 1/min: 1250
 Inj.-qty. cm³/

difference> 1000s.: -11.0...15.0 *

Shutoff

electromagnet>Volt: 12

TD-travel dif.measurement

1.Speed 1/min: 1250

TD-travel

difference> mm: -0.9...1.1 *

Shutoff

electromagnet>Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2000

Charge press hPa: 1000

TD travel mm: 6.10...6.90
> mm: (5.80...7.20)

Shutoff

electromagnet>Volt: 12

3rd speed 1/min: 1250

Charge press hPa: 1000

TD travel mm: 3.40...3.80
> mm: (2.90...4.30)

Shutoff

electromagnet>Volt: 12

4th speed 1/min: 750

Charge press hPa: 1000

TD travel mm: 1.10...1.90
> mm: (0.80...2.20)

Shutoff

electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 750

Charge press. hPa: 1000

Supply-pump

pressure> bar: 4.00...4.60
> bar: -

Shutoff

electromagnet>Volt: 12

2nd speed 1/min: 1250

Charge press. hPa: 1000

Supply-pump
pressure> bar: 5.30...5.90
> bar: -

Shutoff

electromagnet>Volt: 12

3rd speed 1/min: 2000

Charge press. hPa: 1000

Supply-pump
pressure> bar: 7.20...7.80
> bar: -

Shutoff

electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500

Charge press. hPa: 1000

Shutoff

electromagnet>Volt: 12

Overflow : 41.70...86.10

quantity> cm³/10s: (26.70...101.10)

2nd speed 1/min: 2150

Charge press. hPa: 1000

Shutoff

electromagnet>Volt: 12

Overflow : 55.60...139.00

quantity> cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 750

Charge-air pressure-setting

point> hPa: 350

Shutoff

electromagnet>Volt: 12

Del. quantity cm³/: 45.50...46.50

> 1000s.: (43.00...49.00)

2nd speed 1/min: 2750

Charge press. hPa: 1000

Shutoff

electromagnet Volt: 12

Del. quantity cm³/: 0.00...6.00

> 1000s.: (0.00...6.00)

5th speed 1/min: 2575

Charge press. hPa: 1000

Shutoff

electromagnet>Volt: 12

Del. quantity cm³/: 12.00...16.00

> 1000s.: (10.00...18.00)

8th speed 1/min: 2375

Charge press. hPa: 1000

Shutoff

electromagnet>Volt: 12

Del. quantity cm³/: 34.00...44.00

> 1000s.: (33.00...45.00)

9th speed 1/min: 2150

Charge press. hPa: 1000

Shutoff

electromagnet>Volt: 12

Del. quantity cm³/: 49.10...51.10

> 1000s.: (47.90...52.30)

10th speed 1/min: 2000

Charge press. hPa: 1000

Shutoff

electromagnet>Volt: 12

Del. quantity cm³/: 51.00...53.00

> 1000s.: (49.80...54.20)

12th speed 1/min: 1250

Charge press. hPa: 1000

Shutoff

electromagnet>Volt: 12

Del. quantity cm³/: 53.50...54.50

> 1000s.: (51.8...56.2)

18th speed 1/min: 500
 Charge press. hPa: -
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm³/: 36.50...37.50
 > 1000S.: (34.00...40.00)
 20th speed 1/min: 500
 Charge press. hPa: 1000
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm³/: 46.80...49.80
 > 1000S.: (45.30...51.30)

Electr. shutoff:

1st speed 1/min: 440
 Del. quantity cm³/: 0.00...3.00
 > 1000S.: (0.00...3.00)
 Shutoff
 electromagnet>volt: -

Damper set qty.:

LFG-setting:

Idle delivery:

1st speed 1/min: 440
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 15.00...17.00
 > 1000S.: (12.00...20.00)

High Idle:

1st speed 1/mi: 490
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm³/: 15.00...17.00
 > 1000S.: (12.00...20.00)

Rest delivery:

1st speed 1/min: 490
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm³/: 8.00...9.00
 > 1000S.: (6.50...10.50)

Load-dependent start of delivery: Inj.-qty.dif.measurement:

1st speed 1/min: 1250
 Inj.-qty. cm³/ : 2.0...11.0 Z"
 difference> 1000S.: -
 Shutoff
 electromagnet>Volt: 12

TD-travel dif.measurement:
 correttore anticipo iniezione (SV):
 1st speed 1/min: 1250
 TD-travel : -1.40...3.0 "
 difference> mm: -
 Shutoff
 electromagnet>Volt: 12

SP press.-dif.measurement:
 pompa di mandata (FP):
 1st speed 1/min: 1250
 Supply pump-
 pressure > : -0.1...0.3 "
 difference> bar: -
 Shutoff
 electromagnet>Volt: 12

Part-load del.at 3rd inj.-qty.
 terza fermo della portata
 stop (EGR set)
 scarico) (ARF)
 gaz d'échappement-ARF)
 Spacing mm: 12.0

1st speed 1/min: 1250
 Charge press. hPa: 1000
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm³/: 16.8...18.8**
 > 1000S.: (13.80...21.8)

Automatic starting fuel delivery:

2nd speed 1/min: 380
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm³/: 25.00...45.00
 > 1000S.: (25.00...45.00)

3rd speed 1/min: 200
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm³/: 50.00...56.00
 > 1000S.: (45.50...60.50)

4th speed 1/min: 150
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm³/: 37.00...67.00
 > 1000S.: (37.00...67.00)

Shutoff electromagnet:

Cut-in
 >min voltage : 10.0
 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

| | |
|----|-----------------|
| K | mm: 3.2...3.4 |
| KF | mm: KOT |
| MS | mm: 1.1...1.5 |
| XK | mm: A=0.8...3.0 |
| XL | mm: MIKROSCHE. |
| Ya | mm: 28.8...32.8 |
| Yb | mm: 69.2...80.8 |

Remarks:

:

:

Ya = Distance between VE flange and speed-control lever in idle position

Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position

Measurement point = edge of control lever on distributor-head end

Z = Absolute delivery

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEU
 Edition : 04.08.95
 replaces : -
 Calibrating oil : ISO-4113

Injection pump : VE4/9F2250R513-3
 Type number : 0 460 494 384
 Customer Part-No. :

Customer-specific information
 Customer : PSA

Engine : XUD 9 TF-Y

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
 return>temp. > °C
 with>thermometer> : 40.00...48.00
 Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly> : 1 688 901 022

Opening
 Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
 x Wall>thickness : 2.00
 x Length> mm: 450

Start of delivery
 Prestroke mm: -
 > (from BDC): -

Indicator setting
 Piston stroke> mm: 0.3
 Outlet> : A

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
 Charge press. hPa: 1000
 Setting value mm: 3.40...3.80

Shutoff
 electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1250
 Charge press. hPa: 1000
 Setting value bar: 5.30...5.90
 Shutoff
 electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250
 Charge press. hPa: 1000
 Del. quantity cm3/
 > 1000S.: 53.50...54.50
 Shutoff
 electromagnet>Volt: 12
 Dispersion cm3/: 2.0
 > 1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
 Del. quantity cm3/
 > 1000S.: 36.50...37.50
 Shutoff
 electromagnet>Volt: 12

Residual-Delivery Setting

Speed 1/min: 490
 Del. quantity cm3/
 > 1000S.: 8.00...9.00
 Shutoff
 electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2575
 Charge press. hPa: 1000
 Del. quantity cm3/
 > 1000S.: 12.00...16.00
 Shutoff
 electromagnet>Volt: 12

Start:

Speed 1/min: 150
 Del. quantity cm3/: 37.00...67.00
 mind> 1000S.: 37.00
 Shutoff
 electromagnet>Volt: 12

Load-dependent start of delivery:
 Inj.-qty.dif.measurement:

Speed 1/min: 1250
 Inj.-qty. cm3/

difference> 1000S.: -11.0...15.0 *
Shutoff
electromagnet>Volt: 12
TD-travel dif.measurement

1.Speed 1/min: 1250
TD-travel
difference> mm: -0.9...1.1 *
Shutoff
electromagnet>Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2000
Charge press hPa: 1000
TD travel mm: 6.10...6.90
> mm: (5.80...7.20)
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 1250
Charge press hPa: 1000
TD travel mm: 3.40...3.80
> mm: (2.90...4.30)
Shutoff
electromagnet>Volt: 12
4th speed 1/min: 750
Charge press hPa: 1000
TD travel mm: 1.10...1.90
> mm: (0.80...2.20)
Shutoff
electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 750
Charge press. hPa: 1000
Supply-pump
pressure> bar: 4.00...4.60
> bar: -
Shutoff
electromagnet>Volt: 12
2nd speed 1/min: 1250
Charge press. hPa: 1000
Supply-pump
pressure> bar: 5.30...5.90
> bar: -
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 2000
Charge press. hPa: 1000
Supply-pump
pressure> bar: 7.20...7.80
> bar: -
Shutoff
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12
Overflow : 41.70...86.10
quantity> cm³/10s: (26.70...101.10)
2nd speed 1/min: 2150
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12
Overflow : 55.60...139.00
quantity> cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 750
Charge-air pressure-setting
point> hPa: 350
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 45.50...46.50
> 1000S.: (43.00...49.00)
2nd speed 1/min: 2750
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...6.00
> 1000S.: (0.00...6.00)
5th speed 1/min: 2575
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 12.00...16.00
> 1000S.: (10.00...18.00)
8th speed 1/min: 2375
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 34.00...44.00
> 1000S.: (33.00...45.00)
9th speed 1/min: 2150
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 49.10...51.10
> 1000S.: (47.90...52.30)
10th speed 1/min: 2000
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 51.00...53.00
> 1000S.: (49.80...54.20)
12th speed 1/min: 1250
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 53.50...54.50
> 1000S.: (51.8...56.2)

| | |
|--|--|
| 18th speed 1/min: 500 | TD-travel dif.measurement: |
| Charge press. hPa: - | correttore anticipo iniezione (SV): |
| Shutoff | 1st speed 1/min: 1250 |
| electromagnet>Volt: 12 | TD-travel : -1.40...3.0 " |
| Del. quantity cm ³ /: 36.50...37.50 | difference> mm: - |
| > 1000S.: (34.00...40.00) | Shutoff |
| 20th speed 1/min: 500 | electromagnet>Volt: 12 |
| Charge press. hPa: 1000 | SP press.-dif.measurement: |
| Shutoff | pompa di mandata (FP): |
| electromagnet>Volt: 12 | 1st speed 1/min: 1250 |
| Del. quantity cm ³ /: 46.80...49.80 | Supply pump- |
| > 1000S.: (45.30...51.30) | pressure > : -0.1...0.3 " |
| Electr. shutoff: | difference> bar: - |
| 1st speed 1/min: 440 | Shutoff |
| Del. quantity cm ³ /: 0.00...3.00 | electromagnet>Volt: 12 |
| > 1000S.: (0.00...3.00) | Part-load del.at 3rd inj.-qty. |
| Shutoff | terza fermo della portata |
| electromagnet>volt: - | stop (EGR set) |
| Damper set qty.: | scarico) (ARF) |
| LFG-setting: | gaz d'échappement-ARF) |
| Idle delivery: | Spacing mm: 12.0 |
| 1st speed 1/min: 440 | 1st speed 1/min: 1250 |
| Shutoff | Charge press. hPa: 1000 |
| electromagnet Volt: 12 | Shutoff |
| Del. quantity cm ³ /: 15.00...17.00 | electromagnet>Volt: 12 |
| > 1000S.: (12.00...20.00) | Del. quantity cm ³ /: 22.8...24.8** |
| High Idle: | > 1000S.: (19.80...27.8) |
| 1st speed 1/mi: 490 | Automatic starting fuel delivery: |
| Shutoff | 2nd speed 1/min: 380 |
| electromagnet>Volt: 12 | Shutoff |
| Del. quantity cm ³ /: 15.00...17.00 | electromagnet>Volt: 12 |
| > 1000S.: (12.00...20.00) | Del. quantity cm ³ /: 25.00...45.00 |
| Rest delivery: | > 1000S.: (25.00...45.00) |
| 1st speed 1/min: 490 | 3rd speed 1/min: 200 |
| Shutoff | Shutoff |
| electromagnet>Volt: 12 | electromagnet>Volt: 12 |
| Del. quantity cm ³ /: 8.00...9.00 | Del. quantity cm ³ /: 50.00...56.00 |
| > 1000S.: (6.50...10.50) | > 1000S.: (45.50...60.50) |
| Load-dependent start of delivery: | 4th speed 1/min: 150 |
| Inj.-qty.dif.measurement: | Shutoff |
| 1st speed 1/min: 1250 | electromagnet>Volt: 12 |
| Inj.-qty. cm ³ / : 2.0...11.0 Z" | Del. quantity cm ³ /: 37.00...67.00 |
| difference> 1000S.: - | > 1000S.: (37.00...67.00) |
| Shutoff | Shutoff electromagnet: |
| electromagnet>Volt: 12 | Cut-in |
| | >min voltage : 10.0 |
| | Rated voltage : 12.0 |
| | Mounting and assembly dimensions: |

Designation

| | |
|----|-----------------|
| K | mm: 3.2...3.4 |
| KF | mm: KOT |
| MS | mm: 1.1...1.5 |
| XK | mm: A=0.8...3.0 |
| XL | mm: MIKROSCH. |
| Ya | mm: 28.8...32.8 |
| Yb | mm: 69.2...80.8 |

Remarks:

:

:

Ya = Distance between VE flange and speed-control lever in idle position

Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position

Measurement point = edge of control lever on distributor-head end

Z = Absolute delivery

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEU
 Edition : 04.08.95
 replaces : -
 Calibrating oil : ISO-4113

Injection pump : VE4/9F2150R281-2
 Type number : 0 460 494 385
 Customer Part-No. :

Customer-specific information
 Customer : PSA

Engine : XUD11 ATE-Y BVA

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
 return>temp. > °C
 with>thermometer> : 40.00...48.00
 Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly> : 1 688 901 022

Opening
 Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
 x Wall>thickness : 2.00
 x Length> mm: 450

Start of delivery
 Prestroke mm: -
 > (from BDC): -

Indicator setting
 Piston stroke> mm: 0,3
 Outlet> : A

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
 Charge press. hPa: 1000
 Setting value mm: 2.80...3.00

Shutoff
 electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1250
 Charge press. hPa: 1000
 Setting value bar: 5.00...5.60
 Shutoff
 electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250
 Charge press. hPa: 1000
 Del. quantity cm³/
 > 1000S.: 61.00...62.00
 Shutoff
 electromagnet>Volt: 12
 Dispersion cm³/: 2.0
 > 1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
 Del. quantity cm³/
 > 1000S.: 42.0...43.0
 Shutoff
 electromagnet>Volt: 12.0

Residual-Delivery Setting

Speed 1/min: 550
 Del. quantity cm³/
 > 1000S.: 2.50...3.50
 Shutoff
 electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2250
 Charge press. hPa: 1000
 Del. quantity cm³/
 > 1000S.: 49.0...55.0
 Shutoff
 electromagnet>Volt: 12

Start:

Speed 1/min: 100
 Del. quantity cm³/: 70.00...80.00
 mind> 1000S.: 68.00
 Shutoff
 electromagnet>Volt: 12

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

| | |
|--|--|
| 1st speed 1/min: 1000 | Charge-air pressure-setting point> hPa: 350 |
| Charge press hPa: 1000 | LDA-stroke mm: 5.9 |
| TD travel mm: 1.30...1.90 | Shutoff |
| > mm: (0.90...2.30) | electromagnet>Volt: 12.0 |
| electromagnet>Volt: 12.0 | Del. quantity cm ³ /: 56.0...57.0 |
| 2nd speed 1/min: 1250 | > 1000S.: (53.5...59.5) |
| Charge press hPa: 1000 | 2nd speed 1/min: 2700 |
| TD travel mm: 2.80...3.00 | Charge press. hPa: 1000 |
| > mm: (2.20...3.60) | Shutoff |
| Shutoff | electromagnet Volt: 12.0 |
| electromagnet>Volt: 12.0 | Del. quantity cm ³ /: 5.0...11.0 |
| 3rd speed 1/min: 2000 | > 1000S.: (4.00...12.0) |
| Charge press hPa: 1000 | 3rd speed 1/min: 2400 |
| TD travel mm: 6.60...7.20 | Charge press. hPa: 1000 |
| > mm: (6.20...7.60) | Shutoff |
| Shutoff | electromagnet>Volt: 12.0 |
| electromagnet>Volt: 12.0 | Del. quantity cm ³ /: 33.5...40.5 |
| Supply-pump pressure characteristic: | > 1000S.: (33.0...41.00) |
| 1st speed 1/min: 1000 | 4th speed 1/min: 2250 |
| Charge press. hPa: 1000 | Charge press. hPa: 1000 |
| Supply-pump pressure> bar: 4.30...4.90 | Shutoff |
| > bar: - | electromagnet>Volt: 12.0 |
| Shutoff | Del. quantity cm ³ /: 49.0...55.0 |
| electromagnet>Volt: 12 | > 1000S.: (48.0...56.0) |
| 2nd speed 1/min: 1250 | 5th speed 1/min: 2000 |
| Charge press. hPa: 1000 | Charge press. hPa: 1000 |
| Supply-pump pressure> bar: 5.00...5.60 | Shutoff |
| > bar: - | electromagnet>Volt: 12.0 |
| Shutoff | Del. quantity cm ³ /: 56.00...59.00 |
| electromagnet>Volt: 12 | > 1000S.: (55.20...59.70) |
| 3rd speed 1/min: 2000 | 6th speed 1/min: 1250 |
| Charge press. hPa: 1000 | Charge press. hPa: 1000 |
| Supply-pump pressure> bar: 7.10...7.70 | Shutoff |
| > bar: - | electromagnet>Volt: 12.0 |
| Shutoff | Del. quantity cm ³ /: 61.0...62.0 |
| electromagnet>Volt: 12 | > 1000S.: (59.2...63.8) |
| Overflow : 41.60...83.30 | 7th speed 1/min: 1000 |
| quantity> cm ³ /10s: (26.60...98.3) | Charge press. hPa: 1000 |
| 2nd speed 1/min: 2000 | Shutoff |
| Shutoff | electromagnet>Volt: 12.0 |
| electromagnet>Volt: 12.0 | Del. quantity cm ³ /: 60.5...63.5 |
| Overflow : 55.50...138.80 | > 1000S.: (59.5...64.5) |
| quantity> cm ³ /10s: (40.50...153.80) | 8th speed 1/min: 500 |
| Delivery-quant. and breakaway char.: | Charge press. hPa: 1000 |
| 1nd speed 1/min: 750 | Shutoff |
| | electromagnet>Volt: 12.0 |
| | Del. quantity cm ³ /: 59.00...62.00 |
| | > 1000S.: (58.00...63.00) |
| | 9th speed 1/min: 500 |
| | Charge press. hPa: - |
| | Shutoff |
| | electromagnet>Volt: 12.0 |
| | Del. quantity cm ³ /: 42.00...43.00 |
| | > 1000S.: (40.20...44.80) |
| Mech. shutoff: | |
| 1st speed 1/min: 2000 | |

Charge press. hPa: 1000
 Del. quantity cm³/: 0.00...3.00
 > 1000S.: (0.00...3.00)
 Shutoff
 electromagnet>volt: 12.0

Electr. shutoff:
 1st speed 1/min: 325
 Del. quantity cm³/: 0.00...3.00
 > 1000S.: (0.00...3.00)
 Shutoff
 electromagnet>volt: -

Damper set qty.:

LFG-setting:

Idle delivery:
 1st speed 1/min: 325
 Shutoff
 electromagnet Volt: 12.0
 Del. quantity cm³/: 12.0...14.0
 > 1000S.: (10.0...16.0)
 2nd speed 1/min: 375
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 5.00...11.00
 > 1000S.: -

High Idle:
 1st speed 1/mi: 450
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 11.0...13.0
 > 1000S.: (9.0...15.0)

Rest delivery:
 1st speed 1/min: 550
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 2.5...3.5
 > 1000S.: (0.5...5.5)

Part-load del. at 3rd inj.-qty.
 terza fermo della portata
 stop (EGR set)
 scarico) (ARF)
 gaz d'échappement-ARF)
 Spacing mm: 12.0

1st speed 1/min: 1500
 Charge press. hPa: 1000
 KSB/AFB
 valve > Volt: ARF3
 Shutoff
 electromagnet>Volt: 12.0

Del. quantity cm³/: 24.5...25.5
 > 1000S.: (22.0...28.0)
 2nd speed 1/min: 500
 charge press. hPa: 1000
 KSB/AFB
 valve > Volt: ARF4
 Timing valve Volt: 12MM
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 13.5...21.5
 > 1000S.: -

Automatic starting fuel delivery:
 1st speed 1/min: 200
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 76.0...78.0 V
 > 1000S.: (74.5...79.5)

2nd speed 1/min: 325
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 37.00...44.00
 > 1000S.: -

4th speed 1/min: 100
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 70.00...80.00
 > 1000S.: -

Shutoff electromagnet:
 Cut-in
 >min voltage : 10.0
 Rated voltage : 12.0

Mounting and assembly dimensions:
 Designation
 K mm: 3.2...3.4
 KF mm: 5.2...5.6
 MS mm: 0.9...1.3
 XK mm: ARF3= 2.9V
 XL mm: ARF4= 1.9V
 Ya mm: 34.3...38.3
 Yb mm: 67.1...81.7

Ajustement Potentiometer:
 Angle for
 pot. > °: 25
 Supply voltage
 pot. > volt: 5,0

Remarks:
 :
 :
 Ya = Distance between VE flange and

speed-control lever in idle
position

Measurement point = edge of control
lever on drive end

Y_b = Distance between VE flange and
speed-control lever in rated speed
position

Measurement point = edge of control
lever on distributor-head end

Starting delivery check

V = Speed-control lever in full-load
position

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEU
 Edition : 04.08.95
 replaces : -
 Calibrating oil : ISO-4113

Injection pump : VE4/9F2150R474-2
 Type number : 0 460 494 386
 Customer Part-No. :

Customer-specific information
 Customer : PSA

Engine : XUD11 ATE-L BVA

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
 return>temp. > °C
 with>thermometer> : 40.00...48.00
 Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly> : 1 688 901 022

Opening
 Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
 x Wall>thickness : 2.00
 x Length> mm: 450

Start of delivery
 Prestroke mm: -
 > (from BDC): -

Indicator setting
 Piston stroke> mm: 0,3
 Outlet> : A

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
 Charge press. hPa: 1000
 Setting value mm: 2.30...2.70

Shutoff
 electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1250
 Charge press. hPa: 1000
 Setting value bar: 5.00...5.60
 Shutoff
 electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250
 Charge press. hPa: 1000
 Del. quantity cm³/
 > 1000S.: 61.00...62.00
 Shutoff
 electromagnet>Volt: 12
 Dispersion cm³/: 2.0
 > 1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
 Del. quantity cm³/
 > 1000S.: 42.5...43.5
 Shutoff
 electromagnet>Volt: 12.0

Residual-Delivery Setting

Speed 1/min: 550
 Del. quantity cm³/
 > 1000S.: 2.50...3.50
 Shutoff
 electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2250
 Charge press. hPa: 1000
 Del. quantity cm³/
 > 1000S.: 49.0...55.0
 Shutoff
 electromagnet>Volt: 12

Start:

Speed 1/min: 100
 Del. quantity cm³/: 70.0...80.0 V
 mind> 1000S.: 68.00
 Shutoff
 electromagnet>Volt: 12

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1000
 Charge press hPa: 1000
 TD travel mm: 0.90...1.70
 > mm: (0.60...2.00)
 electromagnet>Volt: 12.0
 2nd speed 1/min: 1250
 Charge press hPa: 1000
 TD travel mm: 2.30...2.70
 > mm: (1.80...3.20)
 Shutoff
 electromagnet>Volt: 12.0
 3rd speed 1/min: 2000
 Charge press hPa: 1000
 TD travel mm: 5.50...6.30
 > mm: (5.20...6.60)
 Shutoff
 electromagnet>Volt: 12.0

 Supply-pump pressure characteristic:
 1st speed 1/min: 1000
 Charge press. hPa: 1000
 Supply-pump
 pressure> bar: 4.30...4.90
 > bar: -
 Shutoff
 electromagnet>Volt: 12
 2nd speed 1/min: 1250
 Charge press. hPa: 1000
 Supply-pump
 pressure> bar: 5.00...5.60
 > bar: -
 Shutoff
 electromagnet>Volt: 12
 3rd speed 1/min: 2000
 Charge press. hPa: 1000
 Supply-pump
 pressure> bar: 7.10...7.70
 > bar: -
 Shutoff
 electromagnet>Volt: 12

 Overflow quantity at overflow valve:
 1st speed 1/min: 500
 Charge press. hPa: -
 Shutoff
 electromagnet>Volt: 12.0
 Overflow : 41.60...83.30
 quantity> cm3/10s: (26.60...98.3)
 2nd speed 1/min: 2000
 Shutoff
 electromagnet>Volt: 12.0
 Overflow : 55.50...138.80
 quantity> cm3/10s: (40.50...153.80)

 Delivery-quant. and breakaway char.:
 1nd speed 1/min: 750

Charge-air pressure-setting
 point> hPa: 400
 LDA-stroke mm: 5.9
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 56.0...57.0
 > 1000s.: (53.5...59.5)
 2nd speed 1/min: 2700
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12.0
 Del. quantity cm3/: 5.0...11.0
 > 1000s.: (4.00...12.0)
 3rd speed 1/min: 2400
 Charge press. hPa: 1000
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 33.5...40.5
 > 1000s.: (33.0...41.00)
 4th speed 1/min: 2250
 Charge press. hPa: 1000
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 49.0...55.0
 > 1000s.: (48.0...56.0)
 5th speed 1/min: 2000
 Charge press. hPa: 1000
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 55.00...58.00
 > 1000s.: (54.20...58.80)
 6th speed 1/min: 1250
 Charge press. hPa: 1000
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 61.0...62.0
 > 1000s.: (59.2...63.8)
 7th speed 1/min: 1000
 Charge press. hPa: 1000
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 60.5...63.5
 > 1000s.: (59.5...64.5)
 8th speed 1/min: 500
 Charge press. hPa: 1000
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 60.00...63.00
 > 1000s.: (59.00...64.00)
 9th speed 1/min: 500
 Charge press. hPa: -
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 42.50...43.50
 > 1000s.: (40.70...45.30)

Mech. shutoff:
 1st speed 1/min: 2000

Charge press. hPa: 1000
Del. quantity cm³/: 0.00...3.00
> 1000S.: (0.00...3.00)
Shutoff
electromagnet>volt: 12.0

Electr. shutoff:

1st speed 1/min: 325
Del. quantity cm³/: 0.00...3.00
> 1000S.: (0.00...3.00)
Shutoff
electromagnet>volt: -

Damper set qty.:

LFG-setting:

Idle delivery:

1st speed 1/min: 325
Shutoff
electromagnet Volt: 12.0
Del. quantity cm³/: 12.0...14.0
> 1000S.: (10.0...16.0)
2nd speed 1/min: 375
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 5.00...11.00
> 1000S.: -

High Idle:

1st speed 1/mi: 450
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 11.0...13.0
> 1000S.: (9.0...15.0)

Rest delivery:

1st speed 1/min: 550
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 2.5...3.5
> 1000S.: (0.5...5.5)

Part-load del.at 3rd inj.-qty.
terza fermo della portata
stop (EGR set)
scarico (ARF)
gaz d'échappement-ARF)
Spacing mm: 12.0

1st speed 1/min: 1500
Charge press. hPa: 1000
Shutoff
electromagnet>volt: 12.0
Del. quantity cm³/: 25.0...26.0
> 1000S.: (22.5...28.5)

Automatic starting fuel delivery:

1st speed 1/min: 200
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 76.0...78.0 V
> 1000S.: (74.5...79.5)

2nd speed 1/min: 325
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 37.00...44.00
> 1000S.: -

4th speed 1/min: 100
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 70.00...80.00
> 1000S.: -

Shutoff electromagnet:

Cut-in
>min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

| | |
|----|-----------------|
| K | mm: 3.2...3.4 |
| KF | mm: 5.2...5.6 |
| MS | mm: 0.9...1.3 |
| XK | mm: MIKROSCH. |
| XL | mm: A=0.8...3.0 |
| Ya | mm: 34.3...38.3 |
| Yb | mm: 73.7...88.3 |

Remarks:

:
:
Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

Starting delivery check
V = Speed-control lever in full-load
position

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test scheet : PEU
 Edition : 04.08.95
 replaces : -
 Calibrating oil : ISO-4113
 Injection pump : VE4/9F2250R472-2
 Type number : 0 460 494 387
 Customer Part-No. :

Customer-specific information
 Customer : PSA

Engine : XUD 9 TE-Y

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
 return>temp. > °C
 with>thermometer> : 40.00...48.00
 Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly> : 1 688 901 022

Opening
 Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
 x Wall>thickness : 2.00
 x Length> mm: 450

Start of delivery
 Prestroke mm: -
 > (from BDC): -

Indicator setting
 Piston stroke> mm: 0,3
 Outlet> : A

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500
 Charge press. hPa: 1000
 Setting value mm: 3.90...4.30

Shutoff
 electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1500
 Charge press. hPa: 1000
 Setting value bar: 5.40...6.00
 Shutoff
 electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250
 Charge press. hPa: 1000
 Del. quantity cm3/
 > 1000S.: 53.50...54.50
 Shutoff
 electromagnet>Volt: 12
 Dispersion cm3/: 2.0
 > 1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
 Del. quantity cm3/
 > 1000S.: 36.5...37.5
 Shutoff
 electromagnet>Volt: 12.0

Low-idle speed regulation

Speed 1/min: 440
 Del. quantity cm3/
 > 1000S.: 15.0...17.0
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 2.0
 > 1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 490
 Del. quantity cm3/
 > 1000S.: 8.00...9.00
 Shutoff
 electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2575
 Charge press. hPa: 1000
 Del. quantity cm3/
 > 1000S.: 12.0...16.0
 Shutoff
 electromagnet>Volt: 12

Start:

Speed 1/min: 150

Del. quantity cm³/: 37.00...67.00
mind> 1000S.: 37.00
Shutoff
electromagnet>Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1500
Charge press hPa: -
Inj.-qty. cm³/
difference> 1000S.: 30.5...39.5 Z*
Shutoff
electromagnet>Volt: 12.0
TD-travel dif.measurement

1.Speed 1/min: 1500
Charge press hPa: -
TD-travel
difference> mm: -2.5...2.7 *
Shutoff
electromagnet>Volt: 12.0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 900
Charge press hPa: 1000
TD travel mm: 0.80...1.60
> mm: (0.50...1.90)
electromagnet>Volt: 12.0
2nd speed 1/min: 1500
Charge press hPa: 1000
TD travel mm: 3.90...4.30
> mm: (3.40...4.80)
Shutoff
electromagnet>Volt: 12.0
3rd speed 1/min: 2000
Charge press hPa: 1000
TD travel mm: 6.10...6.90
> mm: (5.80...7.20)
Shutoff
electromagnet>Volt: 12.0

Supply-pump pressure characteristic:

1st speed 1/min: 900
Charge press. hPa: 1000
Supply-pump
pressure> bar: 3.90...4.50
> bar: -
Shutoff
electromagnet>Volt: 12
2nd speed 1/min: 1500
Charge press. hPa: 1000
Supply-pump
pressure> bar: 5.40...6.00
> bar: -

Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 2000
Charge press. hPa: 1000
Supply-pump
pressure> bar: 6.50...7.10
> bar: -
Shutoff
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Overflow : 41.60...83.30
quantity> cm³/10s: (26.60...98.3)
2nd speed 1/min: 2150
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Overflow : 55.50...138.80
quantity> cm³/10s: (40.50...153.80)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 750
Charge-air pressure-setting
point> hPa: 350
LDA-stroke mm: 5.9
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 45.5...46.5
> 1000S.: (43.0...49.0)
2nd speed 1/min: 2750
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12.0
Del. quantity cm³/: 0.00...6.00
> 1000S.: (0.00...6.00)
3rd speed 1/min: 2575
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 12.0...16.0
> 1000S.: (10.0...18.00)
4th speed 1/min: 2375
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 35.0...44.0
> 1000S.: (33.0...45.0)
5th speed 1/min: 2150
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 49.10...51.10
> 1000S.: (47.90...52.30)

6th speed 1/min: 2000
 Charge press. hPa: 1000
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 51.0...53.0
 > 1000S.: (49.8...54.2)
 7th speed 1/min: 1250
 Charge press. hPa: 1000
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 53.5...54.5
 > 1000S.: (51.8...56.2)
 8th speed 1/min: 500
 Charge press. hPa: 1000
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 46.80...49.80
 > 1000S.: (45.30...51.30)
 9th speed 1/min: 500
 Charge press. hPa: -
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 36.50...37.50
 > 1000S.: (34.00...40.00)

Mech. shutoff:

1st speed 1/min: 2000
 Charge press. hPa: 1000
 Del. quantity cm³/: 0.00...3.00
 > 1000S.: (0.00...3.00)
 Shutoff
 electromagnet>volt: 12.0

Electr. shutoff:

1st speed 1/min: 400
 Del. quantity cm³/: 0.00...3.00
 > 1000S.: (0.00...3.00)
 Shutoff
 electromagnet>volt: -

Damper set qty.:

LFG-setting:

Idle delivery:

1st speed 1/min: 440
 Shutoff
 electromagnet Volt: 12.0
 Del. quantity cm³/: 15.0...17.0
 > 1000S.: (12.0...20.0)

High Idle:

1st speed 1/mi: 490
 Shutoff
 electromagnet>Volt: 12.0

Del. quantity cm³/: 15.0...17.0
 > 1000S.: (12.0...20.0)

Rest delivery:

1st speed 1/min: 490
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 8.0...9.0
 > 1000S.: (6.5...10.5)

Load-dependent start of delivery: Inj.-qty.dif.measurement:

1st speed 1/min: 1500
 Charge press. hPa: -
 Inj.-qty. cm³/ : 2.0...8.0 Z"
 difference> 1000S.: -
 Shutoff
 electromagnet>Volt: 12.0

TD-travel dif.measurement:
 correttore anticipo iniezione (SV):
 1st speed 1/min: 1500
 Charge press. hPa: -
 TD-travel : 0.2...1.8 "
 difference> mm: -
 Shutoff
 electromagnet>Volt: 12.0

SP press.-dif.measurement:
 pompa di mandata (FP):
 1st speed 1/min: 1500
 Charge press. hPa: -
 Supply pump-
 pressure > : 3.8...5.2 "
 difference> bar: -
 Shutoff
 electromagnet>Volt: 12.0

Automatic starting fuel delivery:

1st speed 1/min: 200
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 50.00...56.00
 > 1000S.: -

2nd speed 1/min: 380
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 25.00...45.00
 > 1000S.: (25.00...45.00)

4th speed 1/min: 150
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 37.00...67.00
 > 1000S.: (37.00...67.00)

Shutoff electromagnet:

Cut-in

>min voltage : 10.0

Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: 3.2...3.4

KF mm: KOT

MS mm: 1.1...1.5

Ya mm: 28.8...32.8

Yb mm: 68.0...82.0

Remarks:

:

:

Ya = Distance between VE flange and speed-control lever in idle position

Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position

Measurement point = edge of control lever on distributor-head end

Z = Absolute delivery

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEU
 Edition : 04.08.95
 replaces : -
 Calibrating oil : ISO-4113

Injection pump : VE4/9F2250R445-4
 Type number : 0 460 494 388
 Customer Part-No. :

Customer-specific information
 Customer : PSA

Engine : XUD 9 TE-L

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
 return>temp. > °C
 with>thermometer> : 40.00...48.00
 Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly> : 1 688 901 022

Opening
 Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
 x Wall>thickness : 2.00
 x Length> mm: 450

Start of delivery
 Prestroke mm: -
 > (from BDC): -

Indicator setting
 Piston stroke> mm: 0,3
 Outlet> : A

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500
 Charge press. hPa: 1000
 Setting value mm: 3.90...4.30

Shutoff
 electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1500
 Charge press. hPa: 1000
 Setting value bar: 5.40...6.00
 Shutoff
 electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250
 Charge press. hPa: 1000
 Del. quantity cm³/
 > 1000S.: 54.00...55.00
 Shutoff
 electromagnet>Volt: 12
 Dispersion cm³/: 2.0
 > 1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
 Del. quantity cm³/
 > 1000S.: 36.5...37.5
 Shutoff
 electromagnet>Volt: 12.0

Low-idle speed regulation

Speed 1/min: 440
 Del. quantity cm³/
 > 1000S.: 15.0...17.0
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 2.0
 > 1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 490
 Del. quantity cm³/
 > 1000S.: 8.00...9.00
 Shutoff
 electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2575
 Charge press. hPa: 1000
 Del. quantity cm³/
 > 1000S.: 12.0...16.0
 Shutoff
 electromagnet>Volt: 12

Start:

Speed 1/min: 150

Del. quantity cm³/: 37.00...67.00
mind> 1000s.: 37.00

Shutoff
electromagnet>Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 900
Charge press hPa: 1000
TD travel mm: 0.80...1.60
> mm: (0.50...1.90)

electromagnet>Volt: 12.0
2nd speed 1/min: 1500
Charge press hPa: 1000
TD travel mm: 3.90...4.30
> mm: (3.40...4.80)

Shutoff
electromagnet>Volt: 12.0
3rd speed 1/min: 2000
Charge press hPa: 1000
TD travel mm: 6.10...6.90
> mm: (5.80...7.20)

Shutoff
electromagnet>Volt: 12.0

Supply-pump pressure characteristic:

1st speed 1/min: 900
Charge press. hPa: 1000
Supply-pump
pressure> bar: 3.90...4.50
> bar: -

Shutoff
electromagnet>Volt: 12
2nd speed 1/min: 1500
Charge press. hPa: 1000
Supply-pump
pressure> bar: 5.40...6.00
> bar: -

Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 2000
Charge press. hPa: 1000
Supply-pump
pressure> bar: 6.50...7.10
> bar: -

Shutoff
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Overflow : 41.60...83.30
quantity> cm³/10s: (26.60...98.3)

2nd speed 1/min: 2150
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Overflow : 55.50...138.80
quantity> cm³/10s: (40.50...153.80)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 750
Charge-air pressure-setting
point> hPa: 350
LDA-stroke mm: 5.9
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 45.5...46.5
> 1000s.: (43.0...49.0)

2nd speed 1/min: 2750
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12.0
Del. quantity cm³/: 0.00...6.00
> 1000s.: (0.00...6.00)

3rd speed 1/min: 2575
Charge press. hPa: 1000
Shutoff

electromagnet>Volt: 12.0
Del. quantity cm³/: 12.0...16.0
> 1000s.: (10.0...18.00)

4th speed 1/min: 2375
Charge press. hPa: 1000
Shutoff

electromagnet>Volt: 12.0
Del. quantity cm³/: 34.0...44.0
> 1000s.: (33.0...45.0)

5th speed 1/min: 2150
Charge press. hPa: 1000
Shutoff

electromagnet>Volt: 12.0
Del. quantity cm³/: 49.10...51.10
> 1000s.: (47.90...52.30)

6th speed 1/min: 2000
Charge press. hPa: 1000
Shutoff

electromagnet>Volt: 12.0
Del. quantity cm³/: 51.0...53.0
> 1000s.: (49.8...54.2)

7th speed 1/min: 1250
Charge press. hPa: 1000
Shutoff

electromagnet>Volt: 12.0
Del. quantity cm³/: 54.0...55.0
> 1000s.: (52.3...56.7)

8th speed 1/min: 500
Charge press. hPa: 1000
Shutoff

electromagnet>Volt: 12.0
Del. quantity cm³/: 46.80...49.80
> 1000s.: (45.30...51.30)

9th speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 36.50...37.50
> 1000S.: (34.00...40.00)

Mech. shutoff:

1st speed 1/min: 2000
Charge press. hPa: 1000
Del. quantity cm³/: 0.00...3.00
> 1000S.: (0.00...3.00)
Shutoff
electromagnet>volt: 12.0

Electr. shutoff:

1st speed 1/min: 400
Del. quantity cm³/: 0.00...3.00
> 1000S.: (0.00...3.00)
Shutoff
electromagnet>volt: -

Damper set qty.:

LFG-setting:

Idle delivery:

1st speed 1/min: 440
Shutoff
electromagnet Volt: 12.0
Del. quantity cm³/: 15.0...17.0
> 1000S.: (12.0...20.0)

High Idle:

1st speed 1/mi: 490
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 15.0...17.0
> 1000S.: (12.0...20.0)

Rest delivery:

1st speed 1/min: 490
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 8.0...9.0
> 1000S.: (6.5...10.5)

Automatic starting fuel delivery:

1st speed 1/min: 200
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 45.50...60.50
> 1000S.: -

2nd speed 1/min: 380
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 25.00...45.00
> 1000S.: (25.00...45.00)

4th speed 1/min: 150
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 37.00...67.00
> 1000S.: (37.00...67.00)

Shutoff electromagnet:

Cut-in
>min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

| | |
|----|-----------------|
| K | mm: 3.2...3.4 |
| KF | mm: KOT |
| MS | mm: 1.1...1.5 |
| Ya | mm: 25.8...29.8 |
| Yb | mm: 68.0...82.0 |

Remarks:

:
:
Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA
 Edition : 01.08.95
 replaces : -
 Calibrating oil : ISO-4113

Injection pump : VE4/9F2100R466-1
 Type number : 0 460 494 389
 Customer Part-No. :

Customer-specific information
 Customer : FIAT-AUTO

Engine : M718 NT19.L

Power KW: 66

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil
 return>temp. > °C
 with>thermometer> : 40.00...48.00
 Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly> : 1 688 901 022

Opening
 Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
 x Wall>thickness : 2.00
 x Length> mm: 450

Start of delivery
 Prestroke mm: -
 > (from BDC): -

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
 Charge press. hPa: 1000
 Setting value mm: 2.70...2.90
 Shutoff
 electromagnet>Volt: 12.0

Supply-pump pressure

Speed 1/min: 1000
 Charge press. hPa: 1000
 Setting value bar: 4.50...5.10
 Shutoff
 electromagnet>Volt: 12.0

Full-load del. with charge press.:

Speed 1/min: 1500
 Charge press. hPa: 1000
 Del. quantity cm³/
 > 1000S.: 51.50...52.50
 Shutoff
 electromagnet>Volt: 12.0
 Dispersion cm³/: 2.5
 > 1000S.: (2.5)

Full-load del. w/out charge press.:

Speed 1/min: 600
 Del. quantity cm³/
 > 1000S.: 40.00...41.00
 Shutoff
 electromagnet>Volt: 12.0

Low-idle speed regulation

Speed 1/min: 450
 Del. quantity cm³/
 > 1000S.: 12.0...16.0
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 2.5
 > 1000S.: (2.5)

Residual-Delivery Setting

Speed 1/min: 800
 Del. quantity cm³/
 > 1000S.: 3.50...5.50
 Shutoff
 electromagnet Volt: 12.0

Full-load speed regulation

Speed 1/min: 2400
 Charge press. hPa: 1000
 Del. quantity cm³/
 > 1000S.: 23.00...29.00
 Shutoff
 electromagnet>Volt: 12.0

Start:

Speed 1/min: 100
 Del. quantity cm³/: 50.00...80.00
 mind> 1000S.: 50.00

Shutoff
electromagnet>Volt: 12.0

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1500
Charge press hPa: -
Inj.-qty. cm³/
difference> 1000s.: - 8.0...16.0 *
Shutoff
electromagnet>Volt: 12.0
TD-travel dif.measurement

1.Speed 1/min: 1500
Charge press hPa: -
TD-travel
difference> mm: - 0.8...0.9 *
Shutoff
electromagnet>Volt: 12.0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1000
Charge press hPa: 1000
TD travel mm: 2.7...2.9
> mm: (2.2...3.4)
electromagnet>Volt: 12.0
2nd speed 1/min: 1500
Charge press hPa: 1000
TD travel mm: 4.9...5.5
> mm: (4.5...5.9)
Shutoff
electromagnet>Volt: 12.0
3rd speed 1/min: 2100
Charge press hPa: 1000
TD travel mm: 7.60...8.20
> mm: (7.20...8.60)
Shutoff
electromagnet>Volt: 12.0

Supply-pump pressure characteristic:

1st speed 1/min: 1000
Charge press. hPa: 1000
Supply-pump
pressure> bar: 4.50...5.10
> bar: -
Shutoff
electromagnet>Volt: 12.0
2nd speed 1/min: 1500
Charge press. hPa: 1000
Supply-pump
pressure> bar: 5.90...6.50
> bar: -
Shutoff
electromagnet>Volt: 12.0

3rd speed 1/min: 2100
Charge press. hPa: 1000
Supply-pump
pressure> bar: 7.50...8.10
> bar: -

Shutoff
electromagnet>Volt: 12.0

Overflow quantity at overflow valve:

1st speed 1/min: 800
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Overflow : 75.00...119.50
quantity> cm³/10s: (50.00...134.50)
2nd speed 1/min: 2100
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Overflow : 97.30...180.70
quantity> cm³/10s: (82.30...195.70)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 750
Charge-air pressure-setting
point> hPa: 450
LDA-stroke mm: 6.7
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 47.00...48.00
> 1000s.: (45.00...50.00)
2nd speed 1/min: 2700
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12.0
Del. quantity cm³/: 0.00...7.00
> 1000s.: -
3rd speed 1/min: 2500
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 11.0...19.0
> 1000s.: (10.0...20.0)
4th speed 1/min: 2400
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 23.0...29.0
> 1000s.: (21.0...31.0)
5th speed 1/min: 2100
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 50.00...53.00
> 1000s.: (49.00...54.00)
6th speed 1/min: 1500
Charge press. hPa: 1000

Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 51.5...52.5
 > 1000S.: (50.0...54.0)
 7th speed 1/min: 800
 Charge press. hPa: 1000
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 53.5...56.5
 > 1000S.: (52.5...57.5)
 8th speed 1/min: 600
 Charge press. hPa: -
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 40.0...41.0
 > 1000S.: (38.0...43.0)

+ difference> 1000S.: -
 Shutoff
 electromagnet>Volt: 12.0
 2nd speed 1/min: 1500
 Charge press. hPa: -
 Inj.-qty. cm³/: 4.0...6.0 Z'
 difference> 1000S.: -
 Shutoff
 electromagnet Volt: 12.0
 3rd speed 1/min: 1500
 Charge press. hPa: ALFB
 Inj.-qty. cm³/: 4.0...6.0 Z:
 difference> 1000S.: -
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0

Electr. shutoff:
 1st speed 1/min: 450
 Del. quantity cm³/: 0.00...3.00
 > 1000S.: -

Shutoff
 electromagnet>volt: -
 KSB/AFB
 valve > Volt: 12.0

Damper set qty.:

LFG-setting:

Idle delivery:
 1st speed 1/min: 450
 Shutoff
 electromagnet Volt: 12.0
 Del. quantity cm³/: 12.00...16.00
 > 1000S.: (10.00...18.00)
 2nd speed 1/min: 500
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 4.0...10.0
 > 1000S.: (2.5...11.5)

Rest delivery:
 1st speed 1/min: 800
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 3.50...5.50
 > 1000S.: (2.50...6.50)

Load-dependent start of delivery:
 Inj.-qty.dif.measurement:
 1st speed 1/min: 1500
 Charge press. hPa: -
 Inj.-qty. cm³/ : - 9.0..11.0 "

TD-travel dif.measurement:
 correttore anticipo iniezione (SV):
 1st speed 1/min: 1500
 Charge press. hPa: -
 TD-travel : - 0.7...1.3 '
 difference mm: -
 Shutoff
 electromagnet>Volt: 12.0
 2nd speed 1/min: 1500
 Charge press. hPa: ALFB
 TD-travel : 0.0...0.6 :
 difference mm: -
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0

SP press.-dif.measurement:
 pompa di mandata (FP):
 1st speed 1/min: 1500
 Charge press. hPa: -
 Supply pump-
 pressure > : - 0.1...0.3 "
 difference bar: -
 Shutoff
 electromagnet>Volt: 12.0

Automatic starting fuel delivery:
 1st speed 1/min: 220
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 52.00...78.00
 > 1000S.: -
 2nd speed 1/min: 400
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 25.00...45.00
 > 1000S.: -
 3rd speed 1/min: 100

Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 50.0...80.0
> 1000S.: -

Shutoff electromagnet:

Cut-in
>min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation mm:
K 3.2...3.4
KF 5.2...5.6
MS 1.4...1.8
MS1 ** 1,85 V
LDA stroke 6.7
Ya 37.2...39.2
Yb 38.2...46.8

Remarks:

:

:

Ya = Distance between VE flange and
speed-control lever in idle
position

Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position

Measurement point = edge of control
lever on distributor-head end

Z = Absolute delivery

On initial measurement, screw in
residual-quantity adjusting screw 2 mm.

Following pump adjustment, screw out
residual-quantity adjusting screw 2 mm.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA
 Edition : 01.08.95
 replaces : -
 Calibrating oil : ISO-4113

Injection pump : VE4/9F2100R508-1
 Type number : 0 460 494 390
 Customer Part-No. :

Customer-specific information
 Customer : FIAT-AUTO

Engine : M718 NT19.L

Power KW: 66

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil
 return>temp. > °C
 with>thermometer> : 40.00...48.00
 Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly> : 1 688 901 022

Opening
 Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
 x Wall>thickness : 2.00
 x Length> mm: 450

Start of delivery
 Prestroke mm: -
 > (from BDC): -

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
 Charge press. hPa: 1000
 Setting value mm: 2.70...2.90
 Shutoff
 electromagnet>Volt: 12.0

Supply-pump pressure

Speed 1/min: 1000
 Charge press. hPa: 1000
 Setting value bar: 4.50...5.10
 Shutoff
 electromagnet>Volt: 12.0

Full-load del. with charge press.:

Speed 1/min: 1500
 Charge press. hPa: 1000
 Del. quantity cm³/
 > 1000s.: 51.50...52.50
 Shutoff
 electromagnet>Volt: 12.0
 Dispersion cm³/: 2.5
 > 1000s.: (2.5)

Full-Load del. w/out charge press.:

Speed 1/min: 600
 Del. quantity cm³/
 > 1000s.: 40.00...41.00
 Shutoff
 electromagnet>Volt: 12.0

Low-idle speed regulation

Speed 1/min: 450
 Del. quantity cm³/
 > 1000s.: 12.0...16.0
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 2.5
 > 1000s.: (2.5)

Residual-Delivery Setting

Speed 1/min: 800
 Del. quantity cm³/
 > 1000s.: 3.50...5.50
 Shutoff
 electromagnet Volt: 12.0

Full-load speed regulation

Speed 1/min: 2400
 Charge press. hPa: 1000
 Del. quantity cm³/
 > 1000s.: 23.00...29.00
 Shutoff
 electromagnet>Volt: 12.0

Start:

Speed 1/min: 100
 Del. quantity cm³/: 50.00...80.00
 mind> 1000s.: 50.00

| | |
|---|--|
| Shutoff electromagnet>Volt: 12.0 | 3rd speed 1/min: 2100 Charge press. hPa: 1000 Supply-pump pressure> bar: 7.50...8.10 > bar: - |
| Load-dependent start of delivery: Inj.-qty.dif.measurement: | Shutoff electromagnet>Volt: 12.0 |
| Speed 1/min: 1500 Charge press hPa: - Inj.-qty. cm ³ / difference> 1000S.: - 8.0...16.0 * | Overflow quantity at overflow valve: 1st speed 1/min: 800 Charge press. hPa: 1000 Shutoff electromagnet>Volt: 12.0 Overflow : 75.00...119.50 quantity> cm ³ /10s: (50.00...134.50) |
| Shutoff electromagnet>Volt: 12.0 TD-travel dif.measurement | 2nd speed 1/min: 2100 Charge press. hPa: 1000 Shutoff electromagnet>Volt: 12.0 Overflow : 97.30...180.70 quantity> cm ³ /10s: (82.30...195.70) |
| 1.Speed 1/min: 1500 Charge press hPa: ~ TD-travel difference> mm: - 0.8...0.9 * Shutoff electromagnet>Volt: 12.0 | Delivery-quant. and breakaway char.: |
| Inspection-pump test specifications Test specifications in parentheses | 1nd speed 1/min: 750 Charge-air pressure-setting point> hPa: 450 LDA-stroke mm: 6.7 Shutoff electromagnet>Volt: 12.0 Del. quantity cm ³ /: 47.00...48.00 > 1000S.: (45.00...50.00) 2nd speed 1/min: 2700 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12.0 Del. quantity cm ³ /: 0.00...7.00 > 1000S.: - 3rd speed 1/min: 2500 Charge press. hPa: 1000 Shutoff electromagnet>Volt: 12.0 Del. quantity cm ³ /: 11.0...19.0 > 1000S.: (10.0...20.0) 4th speed 1/min: 2400 Charge press. hPa: 1000 Shutoff electromagnet>Volt: 12.0 Del. quantity cm ³ /: 23.0...29.0 > 1000S.: (21.0...31.0) 5th speed 1/min: 2100 Charge press. hPa: 1000 Shutoff electromagnet>Volt: 12.0 Del. quantity cm ³ /: 50.00...53.00 > 1000S.: (49.00...54.00) 6th speed 1/min: 1500 Charge press. hPa: 1000 |
| Timing-device characteristic: | |
| 1st speed 1/min: 1000 Charge press hPa: 1000 TD travel mm: 2.7...2.9 > mm: (2.2...3.4) electromagnet>Volt: 12.0 2nd speed 1/min: 1500 Charge press hPa: 1000 TD travel mm: 4.9...5.5 > mm: (4.5...5.9) Shutoff electromagnet>Volt: 12.0 3rd speed 1/min: 2100 Charge press hPa: 1000 TD travel mm: 7.60...8.20 > mm: (7.20...8.60) Shutoff electromagnet>Volt: 12.0 | |
| Supply-pump pressure characteristic: | |
| 1st speed 1/min: 1000 Charge press. hPa: 1000 Supply-pump pressure> bar: 4.50...5.10 > bar: - Shutoff electromagnet>Volt: 12.0 2nd speed 1/min: 1500 Charge press. hPa: 1000 Supply-pump pressure> bar: 5.90...6.50 > bar: - Shutoff electromagnet>Volt: 12.0 | |

Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 51.5...52.5
 > 1000S.: (50.0...54.0)
 7th speed 1/min: 800
 Charge press. hPa: 1000
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 53.5...56.5
 > 1000S.: (52.5...57.5)
 8th speed 1/min: 600
 Charge press. hPa: -
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 40.0...41.0
 > 1000S.: (38.0...43.0)

difference> 1000S.: -
 Shutoff
 electromagnet>Volt: 12.0
 2nd speed 1/min: 1500
 Charge press. hPa: -
 Inj.-qty. cm³/: 4.0...6.0 Z'
 difference> 1000S.: -
 Shutoff
 electromagnet Volt: 12.0
 3rd speed 1/min: 1500
 Charge press. hPa: ALFB
 Inj.-qty. cm³/: 4.0...6.0 Z:
 difference> 1000S.: -
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0

TD-travel dif.measurement:
 correttore anticipo iniezione (SV):
 1st speed 1/min: 1500
 Charge press. hPa: -
 TD-travel : - 0.7...1.3 '
 difference> mm: -
 Shutoff
 electromagnet>Volt: 12.0
 2nd speed 1/min: 1500
 Charge press. hPa: ALFB
 TD-travel : 0.0...0.6 :
 difference> mm: -
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0

Damper set qty.:

LFG-setting:

Idle delivery:

1st speed 1/min: 450
 Shutoff
 electromagnet Volt: 12.0
 Del. quantity cm³/: 12.00...16.00
 > 1000S.: (10.00...18.00)
 2nd speed 1/min: 500
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 4.0...10.0
 > 1000S.: (2.5...11.5)

SP press.-dif.measurement:
 pompa di mandata (FP):
 1st speed 1/min: 1500
 Charge press. hPa: -
 Supply pump-
 pressure > : - 0.1...0.3 "
 difference> bar: -
 Shutoff
 electromagnet>Volt: 12.0

Rest delivery:

1st speed 1/min: 800
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 3.50...5.50
 > 1000S.: (2.50...6.50)

Part-load del.at 3rd inj.-qty.
 terza fermo della portata
 stop (EGR set)
 scarico) (ARF)
 gaz d'échappement-ARF)
 Spacing mm: 12.0

Load-dependent start of delivery:
 Inj.-qty.dif.measurement:

1st speed 1/min: 1500
 Charge press. hPa: -
 Inj.-qty. cm³/ : - 9.0..11.0 "

1st speed 1/min: 1000
 Charge press. hPa: -
 KSB/AFB
 valve > Volt: -
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 18.5..20.5**
 > 1000S.: (17.5...21.5)

Automatic starting fuel delivery:

1st speed 1/min: 220

Shutoff

electromagnet>Volt: 12.0

Del. quantity cm³/: 52.00...78.00
> 1000S.: -

2nd speed 1/min: 400

Shutoff

electromagnet>Volt: 12.0

Del. quantity cm³/: 25.00...45.00
> 1000S.: -

3rd speed 1/min: 100

Shutoff

electromagnet>Volt: 12.0

Del. quantity cm³/: 50.0...80.0
> 1000S.: -

Shutoff electromagnet:

Cut-in

>min voltage : 10.0

Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

| | |
|------------|-----------------|
| K | mm: 3.2...3.4 |
| KF | mm: 5.2...5.6 |
| MS | mm: 1.4...1.8 |
| MS1 | mm: ** 1,85 V |
| LDA stroke | mm: 6.7 |
| Ya | mm: 37.2...39.2 |
| Yb | mm: 38.2...46.8 |

Remarks:

:

:

Ya = Distance between VE flange and speed-control lever in idle position

Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position

Measurement point = edge of control lever on distributor-head end

Z = Absolute delivery

On initial measurement, screw in

residual-quantity adjusting screw 2 mm.

Following pump adjustment, screw out residual-quantity adjusting screw 2 mm.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VW
 Edition : 04.08.95
 replaces : -
 Calibrating oil : ISO-4113

Injection pump : VE4/9F2100R471-2
 Type number : 0 460 494 391
 Customer Part-No. :

Customer-specific information
 Customer : VW 1.9 L

Engine : UD T4

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
 return>temp. > °C
 with>thermometer> : 40.00...48.00
 Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly> : 1 688 901 111

Opening
 Pressure> bar: 147.00...150.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
 x Wall>thickness : 2.00
 x Length> mm: 450

Start of delivery
 Prestroke mm: -
 > (from BDC): -

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
 Setting value mm: 3.70...4.10
 Shutoff
 electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1250
 Setting value bar: 5.30...5.90
 Shutoff
 electromagnet>Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1250
 Del. quantity cm³/
 > 1000S.: 39.50...40.50
 Shutoff
 electromagnet>Volt: 12
 Dispersion cm³/: 2.5
 > 1000S.: (3.5)

Residual-Delivery Setting

Speed 1/min: 550
 Del. quantity cm³/
 > 1000S.: 5.0...6.0
 Shutoff
 electromagnet Volt: 12.0
 Dispersion cm³/: 2.0
 > 1000S.: (3.0)

Full-load speed regulation

Speed 1/min: 2400
 Del. quantity cm³/
 > 1000S.: 13.00...17.00
 Shutoff
 electromagnet>Volt: 12

Start:

Speed 1/min: 100
 Del. quantity cm³/: 40.00...90.00
 mind> 1000S.: 40.00
 Shutoff
 electromagnet>Volt: 12

Load-dependent start of delivery:
 Inj.-qty.dif.measurement:

Speed 1/min: 1250
 Inj.-qty. cm³/
 difference> 1000S.: - 7.0...13.0 *
 Shutoff
 electromagnet>Volt: 12.0
 TD-travel dif.measurement

1. Speed 1/min: 1250
 TD-travel
 difference> mm: - 0.9...1.1 *
 Shutoff
 electromagnet>Volt: 12.0

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1250
TD travel mm: 3.7...4.1
> mm: (3.1...4.7)
electromagnet>Volt: 12.0
2nd speed 1/min: 1700
TD travel mm: 5.60...6.40
> mm: (5.20...6.80)
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 750
TD travel mm: 1.10...1.90
> mm: (0.70...2.30)
Shutoff
electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 1250
Supply-pump pressure> bar: 5.30...5.90
> bar: -
Shutoff
electromagnet>Volt: 12
2nd speed 1/min: 1700
Supply-pump pressure> bar: 6.60...7.20
> bar: -
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 750
Supply-pump pressure> bar: 3.80...4.40
> bar: -
Shutoff
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 750
Shutoff
electromagnet>Volt: 12
Overflow : 41.70...86.10
quantity> cm3/10s: (26.70...101.10)
2nd speed 1/min: 1850
Shutoff
electromagnet>Volt: 12
Overflow : 55.60...139.00
quantity> cm3/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 1650
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 0.0...3.0
> 1000S.: -
2nd speed 1/min: 2400

Shutoff

electromagnet Volt: 12
Del. quantity cm3/: 13.0...17.0
> 1000S.: (11.0...19.0)
3rd speed 1/min: 2250
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 24.0...34.0
> 1000S.: (23.0...35.0)
4th speed 1/min: 1850
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 40.0...42.0
> 1000S.: (38.8...43.2)
5th speed 1/min: 1250
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 39.50...40.50
> 1000S.: (37.80...42.20)
6th speed 1/min: 750
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 37.0...40.0
> 1000S.: (35.5...41.5)
7th speed 1/min: 450
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 36.0...42.0
> 1000S.: (33.5...44.5)

Electr. shutoff:

1st speed 1/min: 425
Del. quantity cm3/: 0.00...3.00
> 1000S.: (0.00...3.00)
Shutoff
electromagnet>volt: -

Damper set qty.:

LFG-setting:

Idle delivery:

1st speed 1/min: 425
Shutoff
electromagnet Volt: 12.0
Del. quantity cm3/: 5.5...7.5
> 1000S.: (2.5...10.5)

High Idle:

1st speed 1/mi: 500
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 5.5...7.5
> 1000S.: (2.5...10.5)

Rest delivery:

1st speed 1/min: 550
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 5.0...6.0
> 1000S.: (3.5...7.5)
2nd speed 1/min: 515
Shutoff
electromagnet Volt: 12.0
Del. quantity cm³/: 5.5...7.5
> 1000S.: (4.0...9.0)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1250
Inj.-qty. cm³/ : 0.0...3.0 Z "
difference> 1000S.: -
Shutoff
electromagnet>Volt: 12.0

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1250
TD-travel : - 1.3...1.7 "
difference> mm: - (0.9...2.1)
Shutoff
electromagnet>Volt: 12.0

SP press.-dif.measurement:
pompa di mandata (FP):
1st speed 1/min: 1250
Supply pump-
pressure > : - 0.7...1.1 "
difference> bar: - (0.5...1.3)
Shutoff
electromagnet>Volt: 12.0

Part-load del.at 3rd inj.-qty.
terza fermo della portata
stop (EGR set)
scarico) (ARF)
gaz d'échappement-ARF)
Spacing mm: 12.0

1st speed 1/min: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 21.0...23.0 *
> 1000S.: (19.0...25.0)

Automatic starting fuel delivery:

1st speed 1/min: 380
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 25.0...45.0
> 1000S.: -

2nd speed 1/min: 180
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 40.0...90.0
> 1000S.: -

3rd speed 1/min: 100
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 40.0...90.0
> 1000S.: -

Shutoff electromagnet:

Cut-in
>min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

| | |
|----|-----------------|
| K | mm: 3.2...3.4 |
| KF | mm: 5.1...5.5 |
| MS | mm: 1.2...1.4 |
| XK | mm: MIKROSCH. |
| XL | mm: 0.8...3.0 * |
| Ya | mm: 20.0...22.0 |
| Yb | mm: 61.5...72.5 |

Remarks:

:
:
Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

On initial measurement, screw in
residual-quantity adjusting screw 2 mm.

Following pump adjustment, screw out
residual-quantity adjusting screw 2 mm.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : REN
Edition : 04.08.95
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/9F2250R593-2
Type number : 0 460 494 393
Customer Part-No. :

Customer-specific information
Customer : RENAULT

Engine : G8T-760 CA

Power KW: 81

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 022

Opening
Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 450

Start of delivery
Prestroke mm: -
> (from BDC): -

Indicator setting
Piston stroke> mm: 0,74
Outlet> : C

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250

CO2

charge press. hPa: 1000
Setting value mm: 2.60...3.00
Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Charge press. hPa: 1000
Setting value bar: 5.10...5.70
Shutoff
electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250
Charge press. hPa: 1000
Del. quantity cm3/
> 1000S.: 58.20...59.20
Shutoff
electromagnet>Volt: 12
Dispersion cm3/: 2.0
> 1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
> 1000S.: 42.5...43.5
Shutoff
electromagnet>Volt: 12.0

Low-idle speed regulation

Speed 1/min: 350
Del. quantity cm3/
> 1000S.: 19.5...23.5
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 2.5
> 1000S.: (2.5)

Residual-Delivery Setting

Speed 1/min: 450
Del. quantity cm3/
> 1000S.: 5.00...9.00
Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2450
Charge press. hPa: 1000
Del. quantity cm3/
> 1000S.: 27.0...33.0
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³: 47.50...52.50
mind> 1000S.: 47.00
Shutoff
electromagnet>Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250
Charge press hPa: -
Inj.-qty. cm³/
difference> 1000S.: - 9.0...13.0 *
Shutoff
electromagnet>Volt: 12.0
TD-travel dif.measurement

1.Speed 1/min: 1250
Charge press hPa: -
TD-travel
difference> mm: - 0.6...0.8 *
Shutoff
electromagnet>Volt: 12.0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 600
Charge press hPa: 1000
TD travel mm: 1.50...3.90
> mm: -
KSB/AFB
valve > Volt: 12.0
electromagnet>Volt: 12.0
2nd speed 1/min: 1000
Charge press hPa: 1000
TD travel mm: 1.50...2.30
> mm: (1.30...2.50)

KSB/AFB
valve > Volt: -
Shutoff
electromagnet>Volt: 12.0
3rd speed 1/min: 1250
Charge press hPa: 1000
TD travel mm: 2.60...3.00
> mm: (2.30...3.30)

Timing valve Volt: -
Shutoff
electromagnet>Volt: 12.0
4th speed 1/min: 2150
Charge press hPa: 1000
TD travel mm: 5.50...6.30
> mm: (5.30...6.50)
Timing valve Volt: -
Shutoff
electromagnet>Volt: 12.0

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1000
Supply-pump
pressure> bar: 3.30...3.90
> bar: -
Shutoff
electromagnet>Volt: 12
2nd speed 1/min: 1250
Charge press. hPa: 1000
Supply-pump
pressure> bar: 5.10...5.70
> bar: -
Timing valve Volt: -
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 2150
Charge press. hPa: 1000
Supply-pump
pressure> bar: 6.90...7.50
> bar: -
Shutoff
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Overflow : 50.00...94.40
quantity> cm³/10s: (35.00...109.4)
2nd speed 1/min: 2150
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Overflow : 77.70...161.10
quantity> cm³/10s: (62.70...176.10)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 750
Charge-air pressure-setting
point> hPa: 300
LDA-stroke mm: 7.3
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³: 49.5...50.5
> 1000S.: (47.7...52.3)
2nd speed 1/min: 2600
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12.0
Del. quantity cm³: 0.00...5.00
> 1000S.: (0.00...5.00)
3rd speed 1/min: 2550
Charge press. hPa: 1000
Shutoff

electromagnet>Volt: 12.0
 Del. quantity cm³/: 6.5...14.5
 > 1000S.: (5.50...15.50)
 4th speed 1/min: 2450
 Charge press. hPa: 1000
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 27.0...33.0
 > 1000S.: (26.0...34.0)
 5th speed 1/min: 2150
 Charge press. hPa: 1000
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 55.70...58.70
 > 1000S.: (54.40...59.00)
 6th speed 1/min: 1250
 Charge press. hPa: 1000
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 58.2...59.2
 > 1000S.: (56.4...61.0)
 7th speed 1/min: 1000
 Charge press. hPa: 1000
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 58.1...61.1
 > 1000S.: (57.3...61.9)
 8th speed 1/min: 500
 Charge press. hPa: 1000
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 55.70...58.70
 > 1000S.: (54.90...59.50)
 9th speed 1/min: 500
 Charge press. hPa: -
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 42.50...43.50
 > 1000S.: (40.70...45.30)

Electr. shutoff:

1st speed 1/min: 350
 Charge press. hPa: -
 Del. quantity cm³/: 0.00...3.00
 > 1000S.: (0.00...3.00)
 Shutoff
 electromagnet>volt: -
 Timing valve Volt: -

Damper set qty.:

LFG-setting:

Idle delivery:

1st speed 1/min: 350
 Timing valve Volt: -

Shutoff
 electromagnet Volt: 12.0
 Del. quantity cm³/: 19.5...23.5
 > 1000S.: (17.5...25.5)

High Idle:

1st speed 1/min: 400
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 17.5...21.5
 > 1000S.: (15.5...23.5)

Rest delivery:

1st speed 1/min: 450
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 5.0...9.0
 > 1000S.: -

Load-dependent start of delivery: Inj.-qty.dif.measurement:

1st speed 1/min: 1250
 Charge press. hPa: -
 Inj.-qty. cm³/ : - 7.5...9.5 "
 difference> 1000S.: -
 Shutoff
 electromagnet>Volt: 12.0
 2nd speed 1/min: 1250
 Charge press. hPa: -
 Inj.-qty. cm³/: 2.0...8.0 Z'
 difference> 1000S.: -
 3rd speed 1/min: 1250
 Charge press. hPa: ALFB
 Inj.-qty. cm³/: 2.0...8.0 Z**
 difference> 1000S.: -
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0

TD-travel dif.measurement:
 correttore anticipo iniezione (SV):
 1st speed 1/min: 1250
 Charge press. hPa: -
 TD-travel : -0.3...0.9 '
 difference> mm: -
 Shutoff
 electromagnet>Volt: 12.0
 2nd speed 1/min: 1250
 Charge press. hPa: ALFB
 TD-travel : 0.0...0.6 **
 difference> mm: -
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0

SP press.-dif.measurement:

pompa di mandata (FP):

1st speed 1/min: 1250

Charge press. hPa: -

Supply pump-

pressure > : - 0.1...0.3 "

difference> bar: -

Shutoff

electromagnet>Volt: 12.0

Automatic starting fuel delivery:

1st speed 1/min: 200

Shutoff

electromagnet>Volt: 12.0

Del. quantity cm³/: 50.00...70.00

> 1000S.: -

2nd speed 1/min: 300

Shutoff

electromagnet>Volt: 12.0

Del. quantity cm³/: 30.00...50.00

> 1000S.: -

4th speed 1/min: 100

Shutoff

electromagnet>Volt: 12.0

Del. quantity cm³/: 47.50...52.50

> 1000S.: -

Shutoff electromagnet:

Cut-in

>min voltage : 10.0

Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: 3.6...3.8

KF mm: 6.00

MS mm: 0.7...1.1

LDA stroke mm: 7.3

Ya mm: 37.2...41.2

Yb mm: 61.3...69.7

Remarks:

:

:

Ya = Distance between VE flange and
speed-control lever in idle
position

Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position

Measurement point = edge of control

lever on distributor-head end

Permissible port/port scatter with
stop test, electrical = max. 5.0
ccm/1000 S.

Permissible port/port scatter with
stop test, mechanical = max. 5.0
ccm/1000 S.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : REN
 Edition : 04.08.95
 replaces : -
 Calibrating oil : ISO-4113
 Injection pump : VE4/9F2250R593-3
 Type number : 0 460 494 394
 Customer Part-No. :

Customer-specific information
 Customer : RENAULT

Engine : G8T-760 CA

Power KW: 81

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
 return>temp. > °C
 with>thermometer> : 40.00...48.00
 Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly> : 1 688 901 022

Opening
 Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
 x Wall>thickness : 2.00
 x Length> mm: 450

Start of delivery
 Prestroke mm: -
 > (from BDC): -

Indicator setting
 Piston stroke> mm: 0,74
 Outlet> : C

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250

Charge press. hPa: 1000
 Setting value mm: 2.60...3.00
 Shutoff
 electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1250
 Charge press hPa: 1000
 Setting value bar: 5.10...5.70
 Shutoff
 electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250
 Charge press. hPa: 1000
 Del. quantity cm³/
 > 1000S.: 58.20...59.20
 Shutoff
 electromagnet>Volt: 12
 Dispersion cm³/: 2.0
 > 1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
 Del. quantity cm³/
 > 1000S.: 42.5...43.5
 Shutoff
 electromagnet>Volt: 12.0

Low-idle speed regulation

Speed 1/min: 350
 Del. quantity cm³/
 > 1000S.: 19.5...23.5
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 2.5
 > 1000S.: (2.5)

Residual-Delivery Setting

Speed 1/min: 450
 Del. quantity cm³/
 > 1000S.: 5.00...9.00
 Shutoff
 electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2450
 Charge press hPa: 1000
 Del. quantity cm³/
 > 1000S.: 27.0...33.0
 Shutoff
 electromagnet>Volt: 12

Start:

Speed 1/min: 100
 Del. quantity cm³: 47.50...52.50
 mind> 1000S.: 47.00
 Shutoff
 electromagnet>Volt: 12

Load-dependent start of delivery:
 Inj.-qty.dif.measurement:

Speed 1/min: 1250
 Charge press hPa: -
 Inj.-qty. cm³/
 difference> 1000S.: - 9.0...13.0 *
 Shutoff
 electromagnet>Volt: 12.0
 TD-travel dif.measurement

1.Speed 1/min: 1250
 Charge press hPa: -
 TD-travel
 difference> mm: - 0.6...0.8 *
 Shutoff
 electromagnet>Volt: 12.0

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 600
 Charge press hPa: 1000
 TD travel mm: 1.50...3.90
 > mm: -
 KSB/AFB
 valve > Volt: 12.0
 electromagnet>Volt: 12.0
 2nd speed 1/min: 1000
 Charge press hPa: 1000
 TD travel mm: 1.50...2.30
 > mm: (1.30...2.50)

KSB/AFB
 valve > Volt: -
 Shutoff
 electromagnet>Volt: 12.0
 3rd speed 1/min: 1250
 Charge press hPa: 1000
 TD travel mm: 2.60...3.00
 > mm: (2.30...3.30)

Timing valve Volt: -
 Shutoff
 electromagnet>Volt: 12.0
 4th speed 1/min: 2150
 Charge press hPa: 1000
 TD travel mm: 5.50...6.30
 > mm: (5.30...6.50)

Timing valve Volt: -
 Shutoff
 electromagnet>Volt: 12.0

Supply-pump pressure characteristic:

1st speed 1/min: 500
 Charge press. hPa: 1000
 Supply-pump
 pressure> bar: 3.30...3.90
 > bar: -
 Shutoff
 electromagnet>Volt: 12
 2nd speed 1/min: 1250
 charge press. hPa: 1000
 Supply-pump
 pressure> bar: 5.10...5.70
 > bar: -
 Timing valve Volt: -
 Shutoff
 electromagnet>Volt: 12
 3rd speed 1/min: 2150
 Charge press. hPa: 1000
 Supply-pump
 pressure> bar: 6.90...7.50
 > bar: -
 Shutoff
 electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
 Charge press. hPa: 1000
 Shutoff
 electromagnet>Volt: 12.0
 Overflow : 50.00...94.40
 quantity> cm³/10s: (35.00...109.4)
 2nd speed 1/min: 2150
 Charge press. hPa: 1000
 Shutoff
 electromagnet>Volt: 12.0
 Overflow : 77.70...161.10
 quantity> cm³/10s: (62.70...176.10)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 750
 Charge-air pressure-setting
 point> hPa: 300
 LDA-stroke mm: 7.3
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³: 49.5...50.5
 > 1000S.: (47.7...52.3)
 2nd speed 1/min: 2600
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12.0
 Del. quantity cm³: 0.00...5.00
 > 1000S.: (0.00...5.00)
 3rd speed 1/min: 2550
 Charge press. hPa: 1000
 Shutoff

electromagnet>Volt: 12.0
 Del. quantity cm³/: 6.5...14.5
 > 1000S.: (5.50...15.50)
 4th speed 1/min: 2450
 Charge press. hPa: 1000
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 27.0...33.0
 > 1000S.: (26.0...34.0)
 5th speed 1/min: 2150
 Charge press. hPa: 1000
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 55.70...58.70
 > 1000S.: (54.40...59.00)
 6th speed 1/min: 1250
 Charge press. hPa: 1000
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 58.2...59.2
 > 1000S.: (56.4...61.0)
 7th speed 1/min: 1000
 Charge press. hPa: 1000
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 58.1...61.1
 > 1000S.: (57.3...61.9)
 8th speed 1/min: 500
 Charge press. hPa: 1000
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 55.70...58.70
 > 1000S.: (54.90...59.50)
 9th speed 1/min: 500
 Charge press. hPa: -
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 42.50...43.50
 > 1000S.: (40.70...45.30)

Electr. shutoff:

1st speed 1/min: 350
 Charge press. hPa: -
 Del. quantity cm³/: 0.00...3.00
 > 1000S.: (0.00...3.00)
 Shutoff
 electromagnet>volt: -
 Timing valve Volt: -

Damper set qty.:

LFG-setting:

Idle delivery:

1st speed 1/min: 350
 Timing valve Volt: -

Shutoff
 electromagnet Volt: 12.0
 Del. quantity cm³/: 19.5...23.5
 > 1000S.: (17.5...25.5)

High Idle:

1st speed 1/min: 400
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 17.5...21.5
 > 1000S.: (15.5...23.5)

Rest delivery:

1st speed 1/min: 450
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 5.0...9.0
 > 1000S.: -

Load-dependent start of delivery: Inj.-qty.dif.measurement:

1st speed 1/min: 1250
 Charge press. hPa: -
 Inj.-qty. cm³/ : - 7.5...9.5 "
 difference> 1000S.: -
 Shutoff
 electromagnet>Volt: 12.0
 2nd speed 1/min: 1250
 Charge press. hPa: -
 Inj.-qty. cm³/: 2.0...8.0 Z'
 difference> 1000S.: -
 3rd speed 1/min: 1250
 Charge press. hPa: ALFB
 Inj.-qty. cm³/: 2.0...8.0 Z**
 difference> 1000S.: -
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0

TD-travel dif.measurement:
 correttore anticipo iniezione (SV):
 1st speed 1/min: 1250
 Charge press. hPa: -
 TD-travel : -0.3...0.9 '
 difference> mm: -
 Shutoff
 electromagnet>Volt: 12.0
 2nd speed 1/min: 1250
 Charge press. hPa: ALFB
 TD-travel : 0.0...0.6 **
 difference> mm: -
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0

| | |
|--|---|
| SP press.-dif.measurement: pompa di mandata (FP): 1st speed 1/min: 1250 Charge press. hPa: - Supply pump- pressure > : - 0.1...0.3 " difference> bar: - Shutoff electromagnet>Volt: 12.0 | lever on distributor-head end |
| Automatic starting fuel delivery: | Permissible port/port scatter with stop test, electrical = max. 5.0 ccm/1000 S. |
| 1st speed 1/min: 200 Shutoff electromagnet>Volt: 12.0 Del. quantity cm ³ /: 50.00...70.00 > 1000S.: - | Permissible port/port scatter with stop test, mechanical = max. 5.0 ccm/1000 S. |
| 2nd speed 1/min: 300 Shutoff electromagnet>Volt: 12.0 Del. quantity cm ³ /: 30.00...50.00 > 1000S.: - | |
| 4th speed 1/min: 100 Shutoff electromagnet>Volt: 12.0 Del. quantity cm ³ /: 47.50...52.50 > 1000S.: - | |
| Shutoff electromagnet: | |
| Cut-in >min voltage : 10.0 Rated voltage : 12.0 | |
| Mounting and assembly dimensions: | |
| Designation | |
| K | mm: 3.6...3.8 |
| KF | mm: 6.00 |
| MS | mm: 0.7...1.1 |
| LDA stroke | mm: 7.3 |
| Ya | mm: 37.2...41.2 |
| Yb | mm: 61.3...69.7 |
| Remarks: | |
| | : |
| | : |
| Ya = Distance between VE flange and speed-control lever in idle position | |
| Measurement point = edge of control lever on drive end | |
| Yb = Distance between VE flange and speed-control lever in rated speed position | |
| Measurement point = edge of control | |

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test scheet : REN
 Edition : 04.08.95
 replaces : -
 Calibrating oil : ISO-4113
 Injection pump : VE4/9F2400R581-2
 Type number : 0 460 494 396
 Customer Part-No. :

Customer-specific information
 Customer : RENAULT

Engine : G8T - 752 CA

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
 return>temp. > °C
 with>thermometer> : 40.00...48.00
 Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly> : 1 688 901 022

Opening
 Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
 x Wall>thickness : 2.00
 x Length> mm: 450

Start of delivery
 Prestroke mm: -
 > (from BDC): -

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
 Setting value mm: 2.30...2.70
 Shutoff
 electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1250
 Setting value bar: 5.90...6.50
 Shutoff
 electromagnet>Volt: 12

Full-load del. w/out charge press.:
 Speed 1/min: 1250
 Del. quantity cm³/
 > 1000S.: 36.9...37.9
 Shutoff
 electromagnet>Volt: 12.0
 Dispersion cm³/: 2.5
 > 1000S.: (2.5)

Residual-Delivery Setting

Speed 1/min: 450
 Del. quantity cm³/
 > 1000S.: 3.00...7.00
 Shutoff
 electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2600
 Del. quantity cm³/
 > 1000S.: 20.00...26.00
 Shutoff
 electromagnet>Volt: 12

Start:

Speed 1/min: 100
 Del. quantity cm³/: 45.00...75.00
 mind> 1000S.: 45.00
 Shutoff
 electromagnet>Volt: 12

Load-dependent start of delivery:
 Inj.-qty.dif.measurement:

Speed 1/min: 1250
 Inj.-qty. cm³/
 difference> 1000S.: -7.4...11.4 *
 Shutoff
 electromagnet>Volt: 12
 TD-travel dif.measurement

1.Speed 1/min: 1250
 TD-travel
 difference> mm: - 0.7...0.9 *
 Shutoff
 electromagnet>Volt: 12.0

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2000
 TD travel mm: 6.00...6.80
 > mm: (5.80...7.00)
 Shutoff
 electromagnet>Volt: 12
 3rd speed 1/min: 1250
 TD travel mm: 2.30...2.70
 > mm: (2.00...3.00)
 Shutoff
 electromagnet>Volt: 12
 4th speed 1/min: 1000
 TD travel mm: 0.60...1.40
 > mm: (0.40...1.60)
 Shutoff
 electromagnet>Volt: 12
 9th speed 1/min: 750
 TD travel mm: 0.0...2.20
 > mm: -
 KSB/AFB
 valve > Volt: 12
 Shutoff
 electromagnet>Volt: 12

Supply-pump pressure characteristic:
 1st speed 1/min: 750
 Supply-pump
 pressure> bar: 4.40...5.00
 > bar: -
 Shutoff
 electromagnet>Volt: 12
 2nd speed 1/min: 1250
 Supply-pump
 pressure> bar: 5.90...6.50
 Shutoff
 electromagnet>Volt: 12
 3rd speed 1/min: 2000
 Supply-pump
 pressure> bar: 7.90...8.50
 > bar: -
 Shutoff
 electromagnet>Volt: 12

Overflow quantity at overflow valve:
 1st speed 1/min: 750
 Shutoff
 electromagnet>Volt: 12
 Overflow : 41.70...86.10
 quantity> cm³/10s: (26.70...101.10)
 2nd speed 1/min: 2300
 Shutoff
 electromagnet>Volt: 12
 Overflow : 55.60...139.00
 quantity> cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:
 2nd speed 1/min: 2800

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...5.00
> 1000S.: (0.00...5.00)
5th speed 1/min: 2600
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 20.00...26.00
> 1000S.: (19.00...27.00)
8th speed 1/min: 2500
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 31.50...39.50
> 1000S.: (30.50...40.50)
9th speed 1/min: 2300
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 40.00...42.00
> 1000S.: (38.70...43.30)
10th speed 1/min: 2000
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 39.30...41.30
> 1000S.: (38.00...42.60)
12th speed 1/min: 1250
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 36.90...37.90
> 1000S.: (35.1...39.7)
15th speed 1/min: 1000
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 36.20...39.20
> 1000S.: (35.40...40.00)
20th speed 1/min: 750
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 35.00...38.00
> 1000S.: (34.20...38.80)

Electr. shutoff:

1st speed 1/min: 385
Del. quantity cm³: 0.00...3.00
> 1000S.: (0.00...3.00)
Shutoff electromagnet>volt: -

Damper set qty.:

LFG-setting:

Idle delivery:

1st speed 1/min: 385
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 12.00...16.00

> 1000S.: (10.0...18.00)

High Idle:

1st speed 1/mi: 435
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 10.0...14.00
> 1000S.: (8.00...16.00)

Rest delivery:

1st speed 1/min: 450
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 3.00...7.00
> 1000S.: (1.00...9.00)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1250
Inj.-qty. cm³/ : -6.1...8.1 "
difference> 1000S.: -
Shutoff
electromagnet>Volt: 12
2nd speed 1/min: 1250
Inj.-qty. cm³/: 2.00...8.0 Z*
difference> 1000S.: -
Shutoff
electromagnet Volt: 12.0
3rd speed 1/min: 1250
Charge press. hPa: ALFB
Inj.-qty. cm³/: 2.0...8.0 Z**
difference> 1000S.: -
Shutoff
electromagnet>Volt: 12.0

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1250
TD-travel : -1.0...1.4 '
difference> mm: -
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 1250
Charge press. hPa: ALFB
TD-travel : 0.0...0.6 **
difference> mm: -
Shutoff
electromagnet>Volt: 12.0

SP press.-dif.measurement:
pompa di mandata (FP):
1st speed 1/min: 1250
Supply pump-
pressure > : - 0.1...0.3 "
difference> bar: -
Shutoff
electromagnet>Volt: 12.0

Part-load del.at 3rd inj.-qty.

terza fermo della portata
stop (EGR set)
scarico) (ARF)
gaz d'échappement-ARF)
Spacing mm: 12.0

1st speed 1/min: 1250
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 22.5...23.5 *
> 1000S.: (20.5...25.5)

Automatic starting fuel delivery:

1st speed 1/min: 200
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 45.00...95.00
> 1000S.: (45.00...95.00)

2nd speed 1/min: 350
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 15.00...45.00
> 1000S.: (15.00...45.00)

4th speed 1/min: 100
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 45.00...75.00
> 1000S.: (45.00...75.00)

Shutoff electromagnet:

Cut-in
>min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

| | |
|----|-----------------|
| K | mm: 3.6...3.8 |
| KF | mm: 6.0 |
| MS | mm: 0.6...1.0 |
| XK | mm: A =0,8..3.0 |
| XL | mm: MIKROSCHE. |
| Ya | mm: 37.2...41.2 |
| Yb | mm: 61.3...69.7 |

Remarks:

:
:
Z = Absolute delivery
Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control

lever on drive end

Y_b = Distance between VE flange and
speed-control lever in rated speed
position

Measurement point = edge of control
lever on distributor-head end

Permissible port/port scatter with
stop test, electrical = max. 5.0
ccm/1000 S.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : REN
 Edition : 04.08.95
 replaces : -
 Calibrating oil : ISO-4113

 Injection pump : VE4/9F2400R581-3
 Type number : 0 460 494 397
 Customer Part-No. :

Customer-specific information
 Customer : RENAULT

Engine : G8T - 752 CA

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
 return>temp. > °C
 with>thermometer> : 40.00...48.00
 Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly> : 1 688 901 022

Opening
 Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
 x Wall>thickness : 2.00
 x Length> mm: 450

Start of delivery
 Prestroke mm: -
 > (from BDC): -

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
 Setting value mm: 2.30...2.70
 Shutoff
 electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1250
 Setting value bar: 5.90...6.50
 Shutoff
 electromagnet>Volt: 12

Full-load del. w/out charge press.:

 Speed 1/min: 1250
 Del. quantity cm³/
 > 1000S.: 36.9...37.9
 Shutoff
 electromagnet>Volt: 12.0
 Dispersion cm³/: 2.5
 > 1000S.: (2.5)

Residual-Delivery Setting

Speed 1/min: 450
 Del. quantity cm³/
 > 1000S.: 3.00...7.00
 Shutoff
 electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2600
 Del. quantity cm³/
 > 1000S.: 20.00...26.00
 Shutoff
 electromagnet>Volt: 12

Start:

Speed 1/min: 100
 Del. quantity cm³/: 45.00...75.00
 mind> 1000S.: 45.00
 Shutoff
 electromagnet>Volt: 12

Load-dependent start of delivery:
 Inj.-qty.dif.measurement:

Speed 1/min: 1250
 Inj.-qty. cm³/
 difference> 1000S.: -7.4...11.4 *
 Shutoff
 electromagnet>Volt: 12
 TD-travel dif.measurement

1.Speed 1/min: 1250
 TD-travel
 difference> mm: - 0.7...0.9 *
 Shutoff
 electromagnet>Volt: 12.0

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2000
 TD travel mm: 6.00...6.80
 > mm: (5.80...7.00)
 Shutoff
 electromagnet>Volt: 12
 3rd speed 1/min: 1250
 TD travel mm: 2.30...2.70
 > mm: (2.00...3.00)
 Shutoff
 electromagnet>Volt: 12
 4th speed 1/min: 1000
 TD travel mm: 0.60...1.40
 > mm: (0.40...1.60)
 Shutoff
 electromagnet>Volt: 12
 9th speed 1/min: 750
 TD travel mm: 0.0...2.20
 > mm: -
 KSB/AFB
 valve > Volt: 12
 Shutoff
 electromagnet>Volt: 12

Supply-pump pressure characteristic:
 1st speed 1/min: 750
 Supply-pump
 pressure> bar: 4.40...5.00
 > bar: -
 Shutoff
 electromagnet>Volt: 12
 2nd speed 1/min: 1250
 Supply-pump
 pressure> bar: 5.90...6.50
 Shutoff
 electromagnet>Volt: 12
 3rd speed 1/min: 2000
 Supply-pump
 pressure> bar: 7.90...8.50
 > bar: -
 Shutoff
 electromagnet>Volt: 12

Overflow quantity at overflow valve:
 1st speed 1/min: 750
 Shutoff
 electromagnet>Volt: 12
 Overflow : 41.70...86.10
 quantity> cm3/10s: (26.70...101.10)
 2nd speed 1/min: 2300
 Shutoff
 electromagnet>Volt: 12
 Overflow : 55.60...139.00
 quantity> cm3/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:
 2nd speed 1/min: 2800

Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 0.00...5.00
 > 1000s.: (0.00...5.00)
 5th speed 1/min: 2600
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 20.00...26.00
 > 1000s.: (19.00...27.00)
 8th speed 1/min: 2500
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 31.50...39.50
 > 1000s.: (30.50...40.50)
 9th speed 1/min: 2300
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 40.00...42.00
 > 1000s.: (38.70...43.30)
 10th speed 1/min: 2000
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 39.30...41.30
 > 1000s.: (38.00...42.60)
 12th speed 1/min: 1250
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 36.90...37.90
 > 1000s.: (35.1...39.7)
 15th speed 1/min: 1000
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 36.20...39.20
 > 1000s.: (35.40...40.00)
 20th speed 1/min: 750
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 35.00...38.00
 > 1000s.: (34.20...38.80)

Electr. shutoff:

1st speed 1/min: 385
 Del. quantity cm3/: 0.00...3.00
 > 1000s.: (0.00...3.00)
 Shutoff
 electromagnet>volt: -

Damper set qty.:

LFG-setting:

Idle delivery:

1st speed 1/min: 385
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 12.00...16.00

> 1000S.: (10.0...18.00)

High Idle:

1st speed 1/mi: 435
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 10.0...14.00
> 1000S.: (8.00...16.00)

Rest delivery:

1st speed 1/min: 450
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 3.00...7.00
> 1000S.: (1.00...9.00)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1250
Inj.-qty. cm³/ : -6.1...8.1 " "
difference> 1000S.: -
Shutoff
electromagnet>Volt: 12
2nd speed 1/min: 1250
Inj.-qty. cm³/: 2.00...8.0 Z*
difference> 1000S.: -
Shutoff
electromagnet Volt: 12.0
3rd speed 1/min: 1250
Charge press. hPa: ALFB
Inj.-qty. cm³/: 2.0...8.0 Z**
difference> 1000S.: -
Shutoff
electromagnet>Volt: 12.0

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1250
TD-travel : -1.0...1.4 '
difference> mm: -
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 1250
Charge press. hPa: ALFB
TD-travel : 0.0...0.6 **
difference> mm: -
Shutoff
electromagnet>Volt: 12.0

SP press.-dif.measurement:
pompa di mandata (FP):
1st speed 1/min: 1250
Supply pump-
pressure > : - 0.1...0.3 "
difference> bar: -
Shutoff
electromagnet>Volt: 12.0

Part-load del.at 3rd inj.-qty.
terza fermo della portata
stop (EGR set)
scarico) (ARF)
gaz d'échappement-ARF)
Spacing mm: 12.0

1st speed 1/min: 1250
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 22.5...23.5 *
> 1000S.: (20.5...25.5)

Automatic starting fuel delivery:

1st speed 1/min: 200
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 45.00...95.00
> 1000S.: (45.00...95.00)

2nd speed 1/min: 350
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 15.00...45.00
> 1000S.: (15.00...45.00)

4th speed 1/min: 100
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 45.00...75.00
> 1000S.: (45.00...75.00)

Shutoff electromagnet:

Cut-in
>min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

| Designation | |
|-------------|-----------------|
| K | mm: 3.6...3.8 |
| KF | mm: 6.0 |
| MS | mm: 0.6...1.0 |
| XK | mm: A =0,8..3.0 |
| XL | mm: MIKROSCH. |
| Ya | mm: 37.2...41.2 |
| Yb | mm: 61.3...69.7 |

Remarks:

:
:
Z = Absolute delivery

Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control

Lever on drive end

y_b = Distance between VE flange and
speed-control lever in rated speed
position

Measurement point = edge of control
lever on distributor-head end

Permissible port/port scatter with
stop test, electrical = max. 5.0
ccm/1000 s.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA
 Edition : 01.08.95
 replaces : -
 Calibrating oil : ISO-4113

Injection pump : VE4/9F2100R547-1
 Type number : 0 460 494 400
 Customer Part-No. :

Customer-specific information
 Customer : FIAT-AUTO

Engine : M721 CT19.N

Power KW: 60

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil
 return>temp. > °C
 with>thermometer> : 40.00...48.00
 Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly> : 1 688 901 022

Opening
 Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
 x Wall>thickness : 2.00
 x Length> mm: 450

Start of delivery
 Prestroke mm: -
 > (from BDC): -

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500
 Charge press. hPa: 1000
 Setting value mm: 5,80...6,20
 AFB/AFB
 valve > Volt: 12.0

Shutoff
 electromagnet>Volt: 12.0

Supply-pump pressure

Speed 1/min: 1500
 Charge press. hPa: 1000
 Setting value bar: 5.80...6.40
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0

Full-load del. with charge press.:

Speed 1/min: 1500
 Charge press. hPa: 1000
 Del. quantity cm³/
 > 1000S.: 45.50...46.50
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0
 Dispersion cm³/: 2.5
 > 1000S.: (2.5)

Full-load del. w/out charge press.:

Speed 1/min: 600
 Del. quantity cm³/
 > 1000S.: 41.00...42.00
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0

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Low-idle speed regulation

Speed 1/min: 450
 Del. quantity cm³/
 > 1000S.: 14.5...18.5
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 2.5
 > 1000S.: (2.5)

Residual-Delivery Setting

Speed 1/min: 600
 Del. quantity cm³/
 > 1000S.: 4.00...6.00
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet Volt: 12.0

Full-load speed regulation

Speed 1/min: 2300
 Charge press hPa: 1000
 Del. quantity cm³/
 > 1000S.: 31.00...37.00
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0

Start:

Speed 1/min: 100
 Del. quantity cm³/: 50.00...80.00
 mind> 1000S.: 50.00
 KSB/AFB
 Valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0

Load-dependent start of delivery: Inj.-qty.dif.measurement:

Speed 1/min: 1500
 Charge press hPa: -
 Inj.-qty. cm³/
 difference> 1000S.: - 10.0...18.0 *
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0
 TD-travel dif.measurement

1.Speed 1/min: 1500
 Charge press hPa: -
 TD-travel
 difference> mm: - 0.8...1.0 *
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500
 Charge press hPa: 1000
 TD travel mm: 3.2...4.8 A
 > mm: (2.5...5.5) A
 KSB/AFB
 valve > Volt: -
 electromagnet>Volt: 12.0
 2nd speed 1/min: 1000
 Charge press hPa: 1000
 TD travel mm: 4.5...7.5 B
 > mm: (4.0...8.0) B
 KSB/AFB
 valve > Volt: -
 Shutoff

electromagnet>Volt: 12.0
 3rd speed 1/min: 800
 Charge press hPa: 1000
 TD travel mm: 1.70...2.50
 > mm: (1.40...2.80)
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0
 4th speed 1/min: 1500
 Charge press hPa: 1000
 TD travel mm: 5.80...6.20
 > mm: (5.40...6.60)
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0
 5th speed 1/min: 2100
 Charge press. hPa: 1000
 TD travel mm: 8.60...9.40
 > mm: (8.30...9.70)

Supply-pump pressure characteristic:

1st speed 1/min: 800
 Charge press. hPa: 1000
 Supply-pump
 pressure> bar: 3.70...4.30
 > bar: -
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0
 2nd speed 1/min: 1500
 Charge press. hPa: 1000
 Supply-pump
 pressure> bar: 5.80...6.40
 > bar: -
 KSB/AFB

valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0
 3rd speed 1/min: 2100
 Charge press. hPa: 1000
 Supply-pump
 pressure> bar: 7.50...8.10
 > bar: -
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0

Overflow quantity at overflow valve:

1st speed 1/min: 600
 Charge press. hPa: -
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0

Overflow : 75.00...119.50
 quantity> cm³/10s: (50.00...134.50)
 2nd speed 1/min: 2100
 Charge press. hPa: 1000
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0
 Overflow : 97.30...180.70
 quantity> cm³/10s: (82.30...195.70)

 Delivery-quant. and breakaway char.:

 1nd speed 1/min: 900
 Charge-air pressure-setting
 point> hPa: 350
 LDA-stroke mm: 5.2
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³: 46.00...47.00
 > 1000S.: (44.00...49.00)
 2nd speed 1/min: 2650
 Charge press. hPa: 1000
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet Volt: 12.0
 Del. quantity cm³: 0.00...7.00
 > 1000S.: -
 3rd speed 1/min: 2450
 Charge press. hPa: 1000
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³: 13.0...21.0
 > 1000S.: (12.0...22.0)
 4th speed 1/min: 2300
 Charge press. hPa: 1000
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³: 31.0...37.0
 > 1000S.: (29.0...39.0)
 5th speed 1/min: 2100
 Charge press. hPa: 1000
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³: 45.00...48.00
 > 1000S.: (44.00...49.00)
 6th speed 1/min: 1500
 Charge press. hPa: 1000
 KSB/AFB
 valve > Volt: 12.0

Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³: 45.5...46.5
 > 1000S.: (44.0...48.0)
 7th speed 1/min: 900
 Charge press. hPa: 1000
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³: 47.0...50.0
 > 1000S.: (46.0...51.0)
 8th speed 1/min: 600
 Charge press. hPa: -
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³: 41.0...42.0
 > 1000S.: (39.0...44.0)

 Electr. shutoff:

 1st speed 1/min: 450
 Del. quantity cm³: 0.00...3.00
 > 1000S.: -
 Shutoff
 electromagnet>volt: -
 KSB/AFB
 valve > Volt: 12.0

 Damper set qty.:

 LFG-setting:

 Idle delivery:

 1st speed 1/min: 450
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet Volt: 12.0
 Del. quantity cm³: 14.50...18.50
 > 1000S.: (12.50...20.50)

 Rest delivery:

 1st speed 1/min: 600
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³: 4.00...6.00
 > 1000S.: (3.00...7.00)
 2nd speed 1/min: 500
 KSB/AFB
 valve > Volt: 12.0
 Shutoff

electromagnet Volt: 12.0
Del. quantity cm³/: 5.50...8.50
> 1000S.: -

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1500
Charge press. hPa: -
Inj.-qty. cm³/ : - 9.0..11.0 "
difference> 1000S.: -
KSB/AFB
valve > Volt: 12.0
Shutoff
electromagnet>Volt: 12.0
2nd speed 1/min: 1500
Charge press. hPa: -
Inj.-qty. cm³/: 0.0...3.0 Z'
difference> 1000S.: -
KSB/AFB
valve > Volt: 12.0
Shutoff
electromagnet Volt: 12.0

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1500
Charge press. hPa: -
TD-travel : -1.1...1.7 '
difference mm: -
KSB/AFB
valve > Volt: 12.0
Shutoff
electromagnet>Volt: 12.0

SP press.-dif.measurement:
pompa di mandata (FP):
1st speed 1/min: 1500
Charge press. hPa: -
Supply pump-
pressure > : - 0.1...0.3 "
difference> bar: -
KSB/AFB
valve > Volt: 12.0
Shutoff
electromagnet>Volt: 12.0

Part-load del.at 3rd inj.-qty.
terza fermo della portata
stop (EGR set)
scarico) (ARF)
gaz d'échappement-ARF)
Spacing mm: 12.0

1st speed 1/min: 1000
Charge press. hPa: 1000
KSB/AFB
valve > Volt: 12.0
Shutoff
electromagnet>Volt: 12.0

Del. quantity cm³/: 19.00...21.00
> 1000S.: (17.50...22.50)

Automatic starting fuel delivery:

1st speed 1/min: 220
KSB/AFB
valve > Volt: 12.0
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 52.00...78.00
> 1000S.: -

2nd speed 1/min: 350
KSB/AFB
valve > Volt: 12.0
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 35.00...45.00
> 1000S.: -

3rd speed 1/min: 100
KSB/AFB
valve > Volt: 12.0
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 50.0...80.0
> 1000S.: -

Shutoff electromagnet:

Cut-in
>min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

| Designation | |
|-------------|-----------------|
| K | mm: 3.2...3.4 |
| KF | mm: 5.2...5.6 |
| MS | mm: 1.0...1.4 |
| LDA stroke | mm: 5.2 |
| Ya | mm: 37.2...39.2 |
| Yb | mm: 36.6...45.4 |

Ajustement Potentiometer:

Angle for
pot. > *: 20.0
Supply voltage
pot. > volt: 5.0
Output volt
pot. > volt: 1.85

Remarks:

:
:
Ya = Distance between VE flange and
speed-control lever in idle
position

Measurement point = edge of control lever on drive end

Y_b = Distance between VE flange and speed-control lever in rated speed position

Measurement point = edge of control lever on distributor-head end

Z = Absolute delivery

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA
 Edition : 01.08.95
 replaces : -
 Calibrating oil : ISO-4113
 Injection pump : VE4/9F2100R548-1
 Type number : 0 460 494 402
 Customer Part-No. :

Customer-specific information

Customer : FIAT-AUTO
 Engine : M721 CT19.N
 Power KW: 60

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil
 return>temp. > °C
 with>thermometer> : 40.00...48.00
 Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly> : 1 688 901 022

Opening
 Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
 x Wall>thickness : 2.00
 x Length> mm: 450

Start of delivery
 Prestroke mm: -
 > (from BDC): -

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500
 Charge press. hPa: 1000
 Setting value mm: 5,80...6,20
 AFB/AFB
 valve > Volt: 12.0

Shutoff
 electromagnet>Volt: 12.0

Supply-pump pressure

Speed 1/min: 1500
 Charge press. hPa: 1000
 Setting value bar: 5.80...6.40
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0

Full-load del. with charge press.:

Speed 1/min: 1500
 Charge press. hPa: 1000
 Del. quantity cm³/
 > 1000S.: 45.50...46.50
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0
 Dispersion cm³/: 2.5
 > 1000S.: (2.5)

Full-load del. w/out charge press.:

Speed 1/min: 600
 Del. quantity cm³/
 > 1000S.: 41.00...42.00
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0

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Low-idle speed regulation

Speed 1/min: 450
 Del. quantity cm³/
 > 1000S.: 14.5...18.5
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 2.5
 > 1000S.: (2.5)

Residual-Delivery Setting

Speed 1/min: 600
 Del. quantity cm³/
 > 1000S.: 4.00...6.00
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet Volt: 12.0

Full-load speed regulation

Speed 1/min: 2300
 Charge press hPa: 1000
 Del. quantity cm³/
 > 1000S.: 31.00...37.00
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0

Start:

Speed 1/min: 100
 Del. quantity cm³/: 50.00...80.00
 mind> 1000S.: 50.00
 KSB/AFB
 Valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0

Load-dependent start of delivery: Inj.-qty.dif.measurement:

Speed 1/min: 1500
 Charge press hPa: -
 Inj.-qty. cm³/
 difference> 1000S.: - 10.0...18.0 *
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0
 TD-travel dif.measurement

1.Speed 1/min: 1500
 Charge press hPa: -
 TD-travel
 difference> mm: - 0.8...1.0 *
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500
 Charge press hPa: 1000
 TD travel mm: 3.2...4.8 A
 > mm: (2.5...5.5) A
 KSB/AFB
 valve > Volt: -
 electromagnet>Volt: 12.0
 2nd speed 1/min: 1000
 Charge press hPa: 1000
 TD travel mm: 4.5...7.5 B
 > mm: (4.0...8.0) B
 KSB/AFB
 valve > Volt: -
 Shutoff

electromagnet>Volt: 12.0
 3rd speed 1/min: 800
 Charge press hPa: 1000
 TD travel mm: 1.70...2.50
 > mm: (1.40...2.80)
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0
 4th speed 1/min: 1500
 Charge press hPa: 1000
 TD travel mm: 5.80...6.20
 > mm: (5.40...6.60)
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0
 5th speed 1/min: 2100
 charge press. hPa: 1000
 TD travel mm: 8.60...9.40
 > mm: (8.30...9.70)

Supply-pump pressure characteristic:

1st speed 1/min: 800
 charge press. hPa: 1000
 Supply-pump
 pressure> bar: 3.70...4.30
 > bar: -
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0
 2nd speed 1/min: 1500
 charge press. hPa: 1000
 Supply-pump
 pressure> bar: 5.80...6.40
 > bar: -

KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0
 3rd speed 1/min: 2100
 charge press. hPa: 1000
 Supply-pump
 pressure> bar: 7.50...8.10
 > bar: -

KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0

Overflow quantity at overflow valve:

1st speed 1/min: 600
 charge press. hPa: -
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0

Overflow : 75.00...119.50
 quantity> cm³/10s: (50.00...134.50)
 2nd speed 1/min: 2100
 Charge press. hPa: 1000
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0
 Overflow : 97.30...180.70
 quantity> cm³/10s: (82.30...195.70)
 Delivery-quant. and breakaway char.:
 1nd speed 1/min: 900
 Charge-air pressure-setting point> hPa: 350
 LDA-stroke mm: 5.2
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 46.00...47.00
 > 1000S.: (44.00...49.00)
 2nd speed 1/min: 2650
 Charge press. hPa: 1000
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet Volt: 12.0
 Del. quantity cm³/: 0.00...7.00
 > 1000S.: -
 3rd speed 1/min: 2450
 Charge press. hPa: 1000
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 13.0...21.0
 > 1000S.: (12.0...22.0)
 4th speed 1/min: 2300
 Charge press. hPa: 1000
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 31.0...37.0
 > 1000S.: (29.0...39.0)
 5th speed 1/min: 2100
 Charge press. hPa: 1000
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 45.00...48.00
 > 1000S.: (44.00...49.00)
 6th speed 1/min: 1500
 Charge press. hPa: 1000
 KSB/AFB
 valve > Volt: 12.0

Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 45.5...46.5
 > 1000S.: (44.0...48.0)
 7th speed 1/min: 900
 Charge press. hPa: 1000
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 47.0...50.0
 > 1000S.: (46.0...51.0)
 8th speed 1/min: 600
 Charge press. hPa: -
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 41.0...42.0
 > 1000S.: (39.0...44.0)

Electr. shutoff:
 1st speed 1/min: 450
 Del. quantity cm³/: 0.00...3.00
 > 1000S.: -
 Shutoff
 electromagnet>volt: -
 KSB/AFB
 valve > Volt: 12.0

Damper set qty.:
LFG-setting:
Idle delivery:
 1st speed 1/min: 450
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet Volt: 12.0
 Del. quantity cm³/: 14.50...18.50
 > 1000S.: (12.50...20.50)

Rest delivery:
 1st speed 1/min: 600
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 4.00...6.00
 > 1000S.: (3.00...7.00)
 2nd speed 1/min: 500
 KSB/AFB
 valve > Volt: 12.0
 Shutoff

| | |
|--|--|
| electromagnet Volt: 12.0 | Del. quantity cm ³ /: 19.00...21.00 |
| Del. quantity cm ³ /: 5.50...8.50 | > 1000S.: (17.50...22.50) |
| > 1000S.: - | |
| Load-dependent start of delivery: | Automatic starting fuel delivery: |
| Inj.-qty.dif.measurement: | |
| 1st speed 1/min: 1500 | 1st speed 1/min: 220 |
| Charge press. hPa: - | KSB/AFB |
| Inj.-qty. cm ³ / : - 9.0..11.0 " | valve > Volt: 12.0 |
| difference> 1000S.: - | Shutoff |
| KSB/AFB | electromagnet>Volt: 12.0 |
| valve > Volt: 12.0 | Del. quantity cm ³ /: 52.00...78.00 |
| Shutoff | > 1000S.: - |
| electromagnet>Volt: 12.0 | |
| 2nd speed 1/min: 1500 | 2nd speed 1/min: 350 |
| Charge press. hPa: - | KSB/AFB |
| Inj.-qty. cm ³ /: 0.0...3.0 z' | valve > Volt: 12.0 |
| difference> 1000S.: - | Shutoff |
| KSB/AFB | electromagnet>Volt: 12.0 |
| valve > Volt: 12.0 | Del. quantity cm ³ /: 35.00...45.00 |
| Shutoff | > 1000S.: - |
| electromagnet Volt: 12.0 | |
| TD-travel dif.measurement: | 3rd speed 1/min: 100 |
| correttore anticipo iniezione (SV): | KSB/AFB |
| 1st speed 1/min: 1500 | valve > Volt: 12.0 |
| Charge press. hPa: - | Shutoff |
| TD-travel : -1.1...1.7 ' | electromagnet>Volt: 12.0 |
| difference> mm: - | Del. quantity cm ³ /: 50.0...80.0 |
| KSB/AFB | > 1000S.: - |
| valve > Volt: 12.0 | |
| Shutoff | Shutoff magnet: |
| electromagnet>Volt: 12.0 | |
| SP press.-dif.measurement: | Cut-in |
| pompa di mandata (FP): | >min voltage : 10.0 |
| 1st speed 1/min: 1500 | Rated voltage : 12.0 |
| Charge press. hPa: - | |
| Supply pump- | Mounting and assembly dimensions: |
| pressure > : - 0.1...0.3 " | Designation |
| difference> bar: - | K mm: 3.2...3.4 |
| KSB/AFB | KF mm: 5.2...5.6 |
| valve > Volt: 12.0 | MS mm: 1.0...1.4 |
| Shutoff | LDA stroke mm: 5.2 |
| electromagnet>Volt: 12.0 | Ya mm: 37.2...39.2 |
| Part-load del.at 3rd inj.-qty. | Yb mm: 36.6...45.4 |
| terza fermo della portata | |
| stop (EGR set) | Ajustement Potentiometer: |
| scarico) (ARF) | Angle for |
| gaz d'échappement-ARF) | pot. > °: 20.0 |
| Spacing mm: 12.0 | Supply voltage |
| 1st speed 1/min: 1000 | pot. > volt: 5.0 |
| Charge press. hPa: 1000 | Output volt |
| KSB/AFB | pot. > volt: 1.85 |
| valve > Volt: 12.0 | |
| Shutoff | Remarks: |
| electromagnet>Volt: 12.0 | : : Ya = Distance between VE flange and speed-control lever in idle position |

Measurement point = edge of control
lever on drive end

Y_b = Distance between VE flange and
speed-control lever in rated speed
position

Measurement point = edge of control
lever on distributor-head end

Z = Absolute delivery

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : NIS
 Edition : 03.08.95
 replaces : -
 Calibrating oil : ISO-4113

Injection pump : VE4/9F2150R637
 Type number : 0 460 494 403
 Customer Part-No. : 16700 80001

Customer-specific information
 Customer : MISSAN - MISA

Engine : GX-3

Power KW: 53

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
 return>temp. > °C
 with>thermometer> : 40.00...48.00
 Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly> : 1 688 901 022

Opening
 Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
 x Wall>thickness : 2.00
 x Length> mm: 450

Start of delivery
 Prestroke mm: -
 > (from BDC): -

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1200
 Setting value mm: 3.00...3.40
 Shutoff
 electromagnet>Volt: 12.0

Supply-pump pressure

Speed 1/min: 1200
 Setting value bar: 5.60...6.20
 Shutoff
 electromagnet>Volt: 12.0

Full-load del. w/out charge press.:

Speed 1/min: 2150
 Del. quantity cm³/
 > 1000S.: 44.00...45.00
 Shutoff
 electromagnet>Volt: 12.0
 Dispersion cm³/: 2.5
 > 1000S.: (3.0)

Low-idle speed regulation

Speed 1/min: 350
 Del. quantity cm³/
 > 1000S.: 6.5...10.5
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 2.5
 > 1000S.: (3.0)

Full-load speed regulation

Speed 1/min: 2500
 Del. quantity cm³/
 > 1000S.: 12.00...18.00
 Shutoff
 electromagnet>Volt: 12.0

Start:

Speed 1/min: 100
 Del. quantity cm³/: 45.00...75.00
 mind> 1000S.: 45.00
 Shutoff
 electromagnet>Volt: 12.0

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 900
 TD travel mm: 0.8...1.6
 > mm: -
 electromagnet>Volt: 12.0
 2nd speed 1/min: 1200
 TD travel mm: 3.0...3.4
 > mm: (2.5...3.9)
 Shutoff
 electromagnet>Volt: 12.0
 3rd speed 1/min: 2150
 TD travel mm: 8.80...9.60
 > mm: (8.50...9.90)
 Shutoff

electromagnet>Volt: 12.0

Supply-pump pressure characteristic:

1st speed 1/min: 900

Supply-pump

pressure> bar: 4.70...5.30

> bar: -

Shutoff

electromagnet>Volt: 12.0

2nd speed 1/min: 1200

Supply-pump

pressure> bar: 5.60...6.20

> bar: -

Shutoff

electromagnet>Volt: 12.0

3rd speed 1/min: 2150

Supply-pump

pressure> bar: 8.20...8.80

> bar: -

Shutoff

electromagnet>Volt: 12.0

Overflow quantity at overflow valve:

1st speed 1/min: 600

Shutoff

electromagnet>Volt: 12.0

Overflow : 75.00...119.50

quantity> cm³/10s: (50.00...134.50)

2nd speed 1/min: 2150

Shutoff

electromagnet>Volt: 12.0

Overflow : 97.30...180.70

quantity> cm³/10s: (82.30...195.70)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 2700

Shutoff

electromagnet>Volt: 12.0

Del. quantity cm³/: 0.00...5.00

> 1000S.: -

2nd speed 1/min: 2500

Shutoff

electromagnet Volt: 12.0

Del. quantity cm³/: 12.0...18.0

> 1000S.: (10.5...19.5)

3rd speed 1/min: 2350

Shutoff

electromagnet>Volt: 12.0

Del. quantity cm³/: 29.3...37.3

> 1000S.: (27.8...38.8)

4th speed 1/min: 2150

Shutoff

electromagnet>Volt: 12.0

Del. quantity cm³/: 44.0...45.0

> 1000S.: (43.2...45.8)

5th speed 1/min: 1800

Shutoff

electromagnet>Volt: 12.0

Del. quantity cm³/: 42.60...45.60

> 1000S.: (41.60...46.60)

6th speed 1/min: 1200

Shutoff

electromagnet>Volt: 12.0

Del. quantity cm³/: 41.3...44.3

> 1000S.: (40.3...45.3)

7th speed 1/min: 900

Shutoff

electromagnet>Volt: 12.0

Del. quantity cm³/: 40.5...43.5

> 1000S.: (39.5...44.5)

8th speed 1/min: 600

Shutoff

electromagnet>Volt: 12.0

Del. quantity cm³/: 39.5...42.5

> 1000S.: (38.5...43.5)

Electr. shutoff:

1st speed 1/min: 350

Del. quantity cm³/: 0.00...3.00

> 1000S.: -

Shutoff

electromagnet>volt: -

Idle delivery:

1st speed 1/min: 350

Shutoff

electromagnet>Volt: 12.0

Del. quantity cm³/: 6.5...10.5

> 1000S.: (4.5...12.5)

2nd speed 1/min: 800

Shutoff

electromagnet>Volt: 12.0

Del. quantity cm³/: 0.00...5.00

> 1000S.: -

3rd speed 1/min: 500

Shutoff

electromagnet>Volt: 12.0

Del. quantity cm³/: 0.00...3.00

> 1000S.: -

4th speed 1/min: 250

Shutoff

electromagnet Volt: 12.0

Del. quantity cm³/: 27.0...33.0

> 1000S.: (25.0...35.0)

High Idle:

1st speed 1/mi: 500

Shutoff

electromagnet>Volt: 12.0

Del. quantity cm³/: 5.0...13.0

> 1000S.: TLA-E = 4,7MM

Automatic starting fuel delivery:

1st speed 1/min: 270
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 50.00...90.00
> 1000S.: -

2nd speed 1/min: 400
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 10.00...50.00
> 1000S.: -

3rd speed 1/min: 100
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 45.0...75.0
> 1000S.: -

Shutoff electromagnet:

Cut-in
>min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

| | |
|-------|-----------------|
| K | mm: 3.2...3.4 |
| KF | mm: 5.2...5.6 |
| MS | mm: 1.1...1.3 |
| FH | mm: 4.3 |
| TLA-E | mm: 4.7 |
| XK | mm: KSB=1,2MM |
| XL | mm: (SCHRAUBE) |
| Ya | mm: 35.1...39.1 |
| Yb | mm: 59.9...70.1 |

Ajustement Potentiometer:

Angle for
pot. > °: 25

Supply voltage

pot. > volt: 5.0

Output volt

pot. > volt: 0.8

Remarks:

:

:

Ya = Distance between VE flange and
speed-control lever in idle
position

Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and

speed-control lever in rated speed
position

Measurement point = edge of control
lever on distributor-head end

Permissible port/port scatter with
stop test, electrical = max. 5.0
ccm/1000 S.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : NIS
 Edition : 03.08.95
 replaces : -
 Calibrating oil : ISO-4113

Injection pump : VE4/9F2150R637-1
 Type number : 0 460 494 404
 Customer Part-No. : 16700 80000

Customer-specific information
 Customer : MISSAN - MISA

Engine : GX-3

Power KW: 53

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
 return>temp. > °C
 with>thermometer> : 40.00...48.00
 Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly> : 1 688 901 022

Opening
 Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
 x Wall>thickness : 2.00
 x Length> mm: 450

Start of delivery
 Prestroke mm: -
 > (from BDC): -

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1200
 Setting value mm: 3.00...3.40
 Shutoff
 electromagnet>Volt: 12.0

Supply-pump pressure

Speed 1/min: 1200
 Setting value bar: 5.60...6.20
 Shutoff
 electromagnet>Volt: 12.0

Full-load del. w/out charge press.:

Speed 1/min: 2150
 Del. quantity cm³/
 > 1000S.: 44.00...45.00
 Shutoff
 electromagnet>Volt: 12.0
 Dispersion cm³/: 2.5
 > 1000S.: (3.0)

Low-idle speed regulation

Speed 1/min: 350
 Del. quantity cm³/
 > 1000S.: 6.5...10.5
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 2.5
 > 1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 450
 Del. quantity cm³/
 > 1000S.: 6.00...10.0
 Shutoff
 electromagnet Volt: 12.0

Full-Load speed regulation

Speed 1/min: 2500
 Del. quantity cm³/
 > 1000S.: 12.00...18.00
 Shutoff
 electromagnet>Volt: 12.0

Start:

Speed 1/min: 100
 Del. quantity cm³/: 45.00...75.00
 mind> 1000S.: 45.00
 Shutoff
 electromagnet>Volt: 12.0

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 900
 TD travel mm: 0.8...1.6
 > mm: -
 electromagnet>Volt: 12.0
 2nd speed 1/min: 1200

| | | | |
|--|-------------------|---|--|
| TD travel | mm: 3.0...3.4 | + | Del. quantity cm ³ /: 29.3...37.3 |
| > | mm: (2.5...3.9) | + | > 1000S.: (27.8...38.8) |
| Shutoff | | + | 4th speed 1/min: 2150 |
| electromagnet>Volt: 12.0 | | + | Shutoff |
| 3rd speed 1/min: 2150 | | + | electromagnet>Volt: 12.0 |
| TD travel | mm: 8.80...9.60 | + | Del. quantity cm ³ /: 44.0...45.0 |
| > | mm: (8.50...9.90) | + | > 1000S.: (43.2...45.8) |
| Shutoff | | + | 5th speed 1/min: 1800 |
| electromagnet>Volt: 12.0 | | + | Shutoff |
| Supply-pump pressure characteristic: | | + | electromagnet>Volt: 12.0 |
| 1st speed 1/min: 900 | | + | Del. quantity cm ³ /: 42.60...45.60 |
| Supply-pump | | + | > 1000S.: (41.60...46.60) |
| pressure> bar: 4.70...5.30 | | + | 6th speed 1/min: 1200 |
| > bar: - | | + | Shutoff |
| Shutoff | | + | electromagnet>Volt: 12.0 |
| electromagnet>Volt: 12.0 | | + | Del. quantity cm ³ /: 41.3...44.3 |
| 2nd speed 1/min: 1200 | | + | > 1000S.: (40.3...45.3) |
| Supply-pump | | + | 7th speed 1/min: 900 |
| pressure> bar: 5.60...6.20 | | + | Shutoff |
| > bar: - | | + | electromagnet>Volt: 12.0 |
| Shutoff | | + | Del. quantity cm ³ /: 40.5...43.5 |
| electromagnet>Volt: 12.0 | | + | > 1000S.: (39.5...44.5) |
| 3rd speed 1/min: 2150 | | + | 8th speed 1/min: 600 |
| Supply-pump | | + | Shutoff |
| pressure> bar: 8.20...8.80 | | + | electromagnet>Volt: 12.0 |
| > bar: - | | + | Del. quantity cm ³ /: 39.5...42.5 |
| Shutoff | | + | > 1000S.: (38.5...43.5) |
| electromagnet>Volt: 12.0 | | + | |
| Overflow quantity at overflow valve: | | + | Electr. shutoff: |
| 1st speed 1/min: 600 | | + | 1st speed 1/min: 350 |
| Shutoff | | + | Del. quantity cm ³ /: 0.00...3.00 |
| electromagnet>Volt: 12.0 | | + | > 1000S.: - |
| Overflow : 75.00...119.50 | | + | Shutoff |
| quantity> cm ³ /10s: (50.00...134.50) | | + | electromagnet>volt: - |
| 2nd speed 1/min: 2150 | | + | |
| Shutoff | | + | Idle delivery: |
| electromagnet>Volt: 12.0 | | + | 1st speed 1/min: 350 |
| Overflow : 97.30...180.70 | | + | Shutoff |
| quantity> cm ³ /10s: (82.30...195.70) | | + | electromagnet>Volt: 12.0 |
| Delivery-quant. and breakaway char.: | | + | Del. quantity cm ³ /: 6.5...10.5 |
| 1nd speed 1/min: 2700 | | + | > 1000S.: (4.5...12.5) |
| Shutoff | | + | 2nd speed 1/min: 800 |
| electromagnet>Volt: 12.0 | | + | Shutoff |
| Del. quantity cm ³ /: 0.00...5.00 | | + | electromagnet>Volt: 12.0 |
| > 1000S.: - | | + | Del. quantity cm ³ /: 0.00...5.00 |
| 2nd speed 1/min: 2500 | | + | > 1000S.: - |
| Shutoff | | + | 3rd speed 1/min: 500 |
| electromagnet Volt: 12.0 | | + | Shutoff |
| Del. quantity cm ³ /: 12.0...18.0 | | + | electromagnet>Volt: 12.0 |
| > 1000S.: (10.5...19.5) | | + | Del. quantity cm ³ /: 0.00...3.00 |
| 3rd speed 1/min: 2350 | | + | > 1000S.: - |
| Shutoff | | + | 4th speed 1/min: 250 |
| electromagnet>Volt: 12.0 | | + | Shutoff |

High Idle:

1st speed 1/mi: 500
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 5.0...13.0
> 1000S.: TLA-E 4,7MM

Automatic starting fuel delivery:

1st speed 1/min: 270
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 50.00...90.00
> 1000S.: -

2nd speed 1/min: 400
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 10.00...50.00
> 1000S.: -

3rd speed 1/min: 100
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 45.0...75.0
> 1000S.: -

Shutoff electromagnet:

Cut-in
>min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

| | |
|-------|-----------------|
| K | mm: 3.2...3.4 |
| KF | mm: 5.2...5.6 |
| MS | mm: 1.1...1.3 |
| FH | mm: 4.3 |
| TLA-E | mm: 4.7 |
| XK | mm: KSB=1,2MM |
| XL | mm: (SCHRAUBE) |
| Ya | mm: 35.1...39.1 |
| Yb | mm: 59.9...70.1 |

Remarks:

:

:

Ya = Distance between VE flange and
speed-control lever in idle
position

Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed

position

Measurement point = edge of control
lever on distributor-head end

Permissible port/port scatter with
stop test, electrical = max. 5.0
ccm/1000 S.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : REN
 Edition : 03.08.95
 replaces : -
 Calibrating oil : ISO-4113

Injection pump : VE4/9F2400R486-2
 Type number : 0 460 494 405
 Customer Part-No. :

Customer-specific information
 Customer : RENAULT

Engine : G8T-790 CA LAGUNA

Power KW: 60

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
 return>temp. > °C
 with>thermometer> : 40.00...48.00
 Electronically> : 42.00...50.00

Inlet press., bar : 0.30. .0.40

Calibrating nozzle-holder
 assembly> : 1 688 901 022

Opening
 Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
 x Wall>thickness : 2.00
 x Length> mm: 450

Start of delivery
 Prestroke mm: -
 > (from BDC): -

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
 Setting value mm: 2.30...2.70
 Shutoff
 electromagnet>Volt: 12.0

Supply-pump pressure

Speed 1/min: 1250
 Setting value bar: 5.90...6.50
 Shutoff
 electromagnet>Volt: 12.0

Full-load del. w/out charge press.:

Speed 1/min: 1250
 Del. quantity cm3/
 > 1000S.: 36.90...37.90
 Shutoff
 electromagnet>Volt: 12.0
 Dispersion cm3/: 2.5
 > 1000S.: (3.0)

Low-idle speed regulation

Speed 1/min: 385
 Del. quantity cm3/
 > 1000S.: 12.0...16.0
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 2.5
 > 1000S.: (2.5)

Residual-Delivery Setting

Speed 1/min: 450
 Del. quantity cm3/
 > 1000S.: 6.00...10.0
 Shutoff
 electromagnet Volt: 12.0

Full-load speed regulation

Speed 1/min: 2600
 Del. quantity cm3/
 > 1000S.: 20.00...26.00
 Shutoff
 electromagnet>Volt: 12.0

Start:

Speed 1/min: 100
 Del. quantity cm3/: 45.00...75.00
 mind> 1000S.: 45.00
 Shutoff
 electromagnet>Volt: 12.0

Load-dependent start of delivery:
 Inj.-qty.dif.measurement:

Speed 1/min: 1250
 Inj.-qty. cm3/
 difference> 1000S.: ~ 7,4...11.4 *
 Shutoff
 electromagnet>Volt: 12.0
 TD-travel dif.measurement

1.Speed 1/min: 1500
 TD-travel
 difference> mm: - 0.7...0.9 *
 Shutoff
 electromagnet>Volt: 12.0

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 750
 TD travel mm: 0.0...2.2
 > mm: -
 KSB/AFB
 valve > Volt: 12.0
 electromagnet>Volt: 12.0
 2nd speed 1/min: 1000
 TD travel mm: 0.6...1.4
 > mm: (0.4...1.6)
 KSB/AFB
 valve > Volt: -
 Shutoff
 electromagnet>Volt: 12.0
 3rd speed 1/min: 2000
 TD travel mm: 6.00...6.80
 > mm: (5.80...7.00)
 Shutoff
 electromagnet>Volt: 12.0
 4th speed 1/min: 1250
 TD travel mm: 2.3...2.7
 > mm: (2.0...3.0)

Supply-pump pressure characteristic:

1st speed 1/min: 750
 Supply-pump
 pressure> bar: 4.40...5.00
 > bar: -
 Shutoff
 electromagnet>Volt: 12.0
 2nd speed 1/min: 1250
 Supply-pump
 pressure> bar: 5.90...6.50
 > bar: -
 Shutoff
 electromagnet>Volt: 12.0
 3rd speed 1/min: 2000
 Supply-pump
 pressure> bar: 7.90...8.50
 > bar: -
 Shutoff
 electromagnet>Volt: 12.0

Overflow quantity at overflow valve:

1st speed 1/min: 750
 Shutoff
 electromagnet>Volt: 12.0

Overflow : 75.00...119.50
 quantity> cm³/10s: (50.00...134.50)
 2nd speed 1/min: 2300
 Shutoff
 electromagnet>Volt: 12.0
 Overflow : 97.30...180.70
 quantity> cm³/10s: (82.30...195.70)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 2800
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 0.00...5.00
 > 1000S.: -
 2nd speed 1/min: 2600
 Shutoff
 electromagnet Volt: 12.0
 Del. quantity cm³/: 20.0...26.0
 > 1000S.: (19.0...27.0)
 3rd speed 1/min: 2500
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 31.5...39.5
 > 1000S.: (30.5...40.5)
 4th speed 1/min: 2300
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 40.0...42.0
 > 1000S.: (38.7...43.3)
 5th speed 1/min: 2000
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 39.30...41.30
 > 1000S.: (38.00...42.60)
 6th speed 1/min: 1250
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 36.9...37.9
 > 1000S.: (35.1...39.7)
 7th speed 1/min: 1000
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 36.2...39.2
 > 1000S.: (35.4...40.0)
 8th speed 1/min: 750
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 35.0...38.0
 > 1000S.: (34.2...38.8)

Electr. shutoff:

1st speed 1/min: 385
 Del. quantity cm³/: 0.00...3.00
 > 1000S.: -
 Shutoff

| | |
|--|--|
| electromagnet>volt: - | charge press. hPa: ALFB |
| Damper set qty.: | TD-travel : 0.0...0.6 : |
| LFG-setting: | difference> mm: - |
| Idle delivery: | KSB/AFB |
| 1st speed 1/min: 385 | valve > Volt: 12.0 |
| Shutoff | Shutoff |
| electromagnet Volt: 12.0 | electromagnet>Volt: 12.0 |
| Del. quantity cm ³ /: 12.00...16.00 | SP press.-dif.measurement: |
| > 1000S.: (10.00...18.00) | pompa di mandata (FP): |
| High Idle: | 1st speed 1/min: 1250 |
| 1st speed 1/mi: 435 | Supply pump- |
| Shutoff | pressure > : - 0.1...0.3 " |
| electromagnet>Volt: 12.0 | difference> bar: - |
| Del. quantity cm ³ /: 10.0...14.0 | Shutoff |
| > 1000S.: (8.00...16.00) | electromagnet>Volt: 12.0 |
| Rest delivery: | Part-load del.at 3rd inj.-qty. |
| 1st speed 1/min: 450 | terza fermo della portata |
| Shutoff | stop (EGR set) |
| electromagnet>Volt: 12.0 | scarico) (ARF) |
| Del. quantity cm ³ /: 6.00...10.0 | gaz d'échappement-ARF) |
| > 1000S.: - | Spacing mm: 12.0 |
| Load-dependent start of delivery: | 1st speed 1/min: 125 |
| Inj.-qty.dif.measurement: | Shutoff |
| 1st speed 1/min: 1250 | electromagnet>Volt: 12.0 |
| Inj.-qty. cm ³ / : - 6.1...8.1 " | Del. quantity cm ³ /: 22.5..23.5 ** |
| difference> 1000S.: - | > 1000S.: (20.5...25.5) |
| Shutoff | Automatic starting fuel delivery: |
| electromagnet>Volt: 12.0 | 1st speed 1/min: 200 |
| 2nd speed 1/min: 1250 | Shutoff |
| Inj.-qty. cm ³ /: 2.0...8.0 Z' | electromagnet>Volt: 12.0 |
| difference> 1000S.: - | Del. quantity cm ³ /: 45.00...95.00 |
| Shutoff | > 1000S.: - |
| electromagnet Volt: 12.0 | 2nd speed 1/min: 350 |
| 3rd speed 1/min: 1250 | Shutoff |
| Charge press. hPa: ALFB | electromagnet>Volt: 12.0 |
| Inj.-qty. cm ³ /: 2.0...8.0 Z: | Del. quantity cm ³ /: 15.00...45.00 |
| difference> 1000S.: - | > 1000S.: - |
| KSB/AFB | 3rd speed 1/min: 100 |
| valve > Volt: 12.0 | Shutoff |
| Shutoff | electromagnet>Volt: 12.0 |
| electromagnet>Volt: 12.0 | Del. quantity cm ³ /: 45.0...75.0 |
| TD-travel dif.measurement: | > 1000S.: - |
| correttore anticipo iniezione (SV): | Shutoff electromagnet: |
| 1st speed 1/min: 1500 | Cut-in |
| TD-travel : - 0.9...1.5 ' | >min voltage : 10.0 |
| difference> mm: - | Rated voltage : 12.0 |
| Shutoff | Mounting and assembly dimensions: |
| electromagnet>Volt: 12.0 | Designation |
| 2nd speed 1/min: 1250 | K mm: 3.6...3.8 |

| | |
|----|-----------------|
| KF | mm: KOT |
| MS | mm: 0.8...1.0 |
| XK | mm: MIKROSCH. |
| XL | mm: 0.8...3.0** |
| Ya | mm: 27.8...31.8 |
| Yb | mm: 52.1...61.9 |

Remarks:

:

:

Ya = Distance between VE flange and speed-control lever in idle position

Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position

Measurement point = edge of control lever on distributor-head end

Z = Absolute delivery

On initial measurement, screw in residual-quantity adjusting screw 2 mm.

Following pump adjustment, screw out residual-quantity adjusting screw 2 mm.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : REN
 Edition : 03.08.95
 replaces : -
 Calibrating oil : ISO-4113

Injection pump : VE4/9F2400R486-3
 Type number : 0 460 494 406
 Customer Part-No. :

Customer-specific information
 Customer : RENAULT

Engine : G8T-790 CA LAGUNA

Power KW: 60

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
 return>temp. > °C
 with>thermometer> : 40.00...48.00
 Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly> : 1 688 901 022

Opening
 Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
 x Wall>thickness : 2.00
 x Length> mm: 450

Start of delivery
 Prestroke mm: -
 > (from BDC): -

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
 Setting value mm: 2.30...2.70
 Shutoff
 electromagnet>Volt: 12.0

Supply-pump pressure

Speed 1/min: 1250
 Setting value bar: 5.90...6.50
 Shutoff
 electromagnet>Volt: 12.0

Full-load del. w/out charge press.:

Speed 1/min: 1250
 Del. quantity cm3/
 > 1000S.: 36.90...37.90
 Shutoff
 electromagnet>Volt: 12.0
 Dispersion cm3/: 2.5
 > 1000S.: (3.0)

Low-idle speed regulation

Speed 1/min: 385
 Del. quantity cm3/
 > 1000S.: 12.0...16.0
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 2.5
 > 1000S.: (2.5)

Residual-Delivery Setting

Speed 1/min: 450
 Del. quantity cm3/
 > 1000S.: 6.00...10.0
 Shutoff
 electromagnet Volt: 12.0

Full-load speed regulation

Speed 1/min: 2600
 Del. quantity cm3/
 > 1000S.: 20.00...26.00
 Shutoff
 electromagnet>Volt: 12.0

Start:

Speed 1/min: 100
 Del. quantity cm3/: 45.00...75.00
 mind> 1000S.: 45.00
 Shutoff
 electromagnet>Volt: 12.0

Load-dependent start of delivery:
 Inj.-qty.dif.measurement:

Speed 1/min: 1250
 Inj.-qty. cm3/
 difference> 1000S.: - 7,4...11.4 *
 Shutoff
 electromagnet>Volt: 12.0
 TD-travel dif.measurement

1.Speed 1/min: 1500
 TD-travel
 difference> mm: - 0.7...0.9 *
 Shutoff
 electromagnet>Volt: 12.0

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 750
 TD travel mm: 0.0...2.2
 > mm: -
 KSB/AFB
 valve > Volt: 12.0
 electromagnet>Volt: 12.0
 2nd speed 1/min: 1000
 TD travel mm: 0.6...1.4
 > mm: (0.4...1.6)
 KSB/AFB
 valve > Volt: -
 Shutoff
 electromagnet>Volt: 12.0
 3rd speed 1/min: 2000
 TD travel mm: 6.00...6.80
 > mm: (5.80...7.00)
 Shutoff
 electromagnet>Volt: 12.0
 4th speed 1/min: 1250
 TD travel mm: 2.3...2.7
 > mm: (2.0...3.0)

Supply-pump pressure characteristic:

1st speed 1/min: 750
 Supply-pump
 pressure> bar: 4.40...5.00
 > bar: -
 Shutoff
 electromagnet>Volt: 12.0
 2nd speed 1/min: 1250
 Supply-pump
 pressure> bar: 5.90...6.50
 > bar: -
 Shutoff
 electromagnet>Volt: 12.0
 3rd speed 1/min: 2000
 Supply-pump
 pressure> bar: 7.90...8.50
 > bar: -
 Shutoff
 electromagnet>Volt: 12.0

Overflow quantity at overflow valve:

1st speed 1/min: 750
 Shutoff
 electromagnet>Volt: 12.0

Overflow : 75.00...119.50
 quantity> cm3/10s: (50.00...134.50)
 2nd speed 1/min: 2300
 Shutoff
 electromagnet>Volt: 12.0
 Overflow : 97.30...180.70
 quantity> cm3/10s: (82.30...195.70)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 2800
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 0.00...5.00
 > 1000S.: -
 2nd speed 1/min: 2600
 Shutoff
 electromagnet Volt: 12.0
 Del. quantity cm3/: 20.0...26.0
 > 1000S.: (19.0...27.0)
 3rd speed 1/min: 2500
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 31.5...39.5
 > 1000S.: (30.5...40.5)
 4th speed 1/min: 2300
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 40.0...42.0
 > 1000S.: (38.7...43.3)
 5th speed 1/min: 2000
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 39.30...41.30
 > 1000S.: (38.00...42.60)
 6th speed 1/min: 1250
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 36.9...37.9
 > 1000S.: (35.1...39.7)
 7th speed 1/min: 1000
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 36.2...39.2
 > 1000S.: (35.4...40.0)
 8th speed 1/min: 750
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 35.0...38.0
 > 1000S.: (34.2...38.8)

Electr. shutoff:

1st speed 1/min: 385
 Del. quantity cm3/: 0.00...3.00
 > 1000S.: -
 Shutoff

electromagnet>volt: -
 Damper set qty.:
 LFG-setting:
 Idle delivery:
 1st speed 1/min: 385
 Shutoff
 electromagnet Volt: 12.0
 Del. quantity cm³/: 12.00...16.00
 > 1000S.: (10.00...18.00)
 High Idle:
 1st speed 1/mi: 435
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 10.0...14.0
 > 1000S.: (8.00...16.00)
 Rest delivery:
 1st speed 1/min: 450
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 6.00...10.0
 > 1000S.: -
 Load-dependent start of delivery:
 Inj.-qty.dif.measurement:
 1st speed 1/min: 1250
 Inj.-qty. cm³/ : - 6.1...8.1 "
 difference> 1000S.: -
 Shutoff
 electromagnet>Volt: 12.0
 2nd speed 1/min: 1250
 Inj.-qty. cm³/: 2.0...8.0 Z'
 difference> 1000S.: -
 Shutoff
 electromagnet Volt: 12.0
 3rd speed 1/min: 1250
 Charge press. hPa: ALFB
 Inj.-qty. cm³/: 2.0...8.0 Z:
 difference> 1000S.: -
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0
 TD-travel dif.measurement:
 correttore anticipo iniezione (SV):
 1st speed 1/min: 1500
 TD-travel : - 0.9...1.5 '
 difference> mm: -
 Shutoff
 electromagnet>Volt: 12.0
 2nd speed 1/min: 1250

Charge press. hPa: ALFB
 TD-travel : 0.0...0.6 :
 difference> mm: -
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0
 SP press.-dif.measurement:
 pompa di mandata (FP):
 1st speed 1/min: 1250
 Supply pump-
 pressure > : - 0.1...0.3 "
 difference> bar: -
 Shutoff
 electromagnet>Volt: 12.0
 Part-load del.at 3rd inj.-qty.
 terza fermo della portata
 stop (EGR set)
 scarico) (ARF)
 gaz d'échappement-ARF)
 Spacing mm: 12.0
 1st speed 1/min: 125
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 22.5..23.5 **
 > 1000S.: (20.5...25.5)
 Automatic starting fuel delivery:
 1st speed 1/min: 200
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 45.00...95.00
 > 1000S.: -
 2nd speed 1/min: 350
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 15.00...45.00
 > 1000S.: -
 3rd speed 1/min: 100
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 45.0...75.0
 > 1000S.: -
 Shutoff electromagnet:
 Cut-in
 >min voltage : 10.0
 Rated voltage : 12.0
 Mounting and assembly dimensions:
 Designation K mm: 3.6...3.8

| | |
|----|-----------------|
| KF | mm: KOT |
| MS | mm: 0.8...1.0 |
| XK | mm: MIKROSCH. |
| XL | mm: 0.8...3.0** |
| Ya | mm: 27.8...31.8 |
| Yb | mm: 52.1...61.9 |

Remarks:

⋮
⋮

Ya = Distance between VE flange and speed-control lever in idle position

Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position

Measurement point = edge of control lever on distributor-head end

Z = Absolute delivery

On initial measurement, screw in residual-quantity adjusting screw 2 mm.

Following pump adjustment, screw out residual-quantity adjusting screw 2 mm.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA
 Edition : 01.08.95
 replaces : -
 Calibrating oil : ISO-4113

Injection pump : VE4/9F2100R466-2
 Type number : 0 460 494 407
 Customer Part-No. :

Customer-specific information
 Customer : FIAT-AUTO

Engine : M718 NT19.L

Power KW: 66

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil
 return>temp. > °C
 with>thermometer> : 40.00...48.00
 Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly> : 1 688 901 022

Opening
 Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
 x Wall>thickness : 2.00
 x Length> mm: 450

Start of delivery
 Prestroke mm: -
 > (from BDC): -

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
 Charge press. hPa: 1000
 Setting value mm: 2.70...2.90
 Shutoff
 electromagnet>Volt: 12.0

Supply-pump pressure

Speed 1/min: 1000
 Charge press. hPa: 1000
 Setting value bar: 4.50...5.10
 Shutoff
 electromagnet>Volt: 12.0

Full-load del. with charge press.:

Speed 1/min: 1500
 Charge press. hPa: 1000
 Del. quantity cm3/
 > 1000S.: 51.50...52.50
 Shutoff
 electromagnet>Volt: 12.0
 Dispersion cm3/: 2.5
 > 1000S.: (2.5)

Full-load del. w/out charge press.:

Speed 1/min: 600
 Del. quantity cm3/
 > 1000S.: 40.00...41.00
 Shutoff
 electromagnet>Volt: 12.0

Low-idle speed regulation

Speed 1/min: 450
 Del. quantity cm3/
 > 1000S.: 12.0...16.0
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 2.5
 > 1000S.: (2.5)

Residual-Delivery Setting

Speed 1/min: 800
 Del. quantity cm3/
 > 1000S.: 3.50...5.50
 Shutoff
 electromagnet Volt: 12.0

Full-load speed regulation

Speed 1/min: 2400
 Charge press. hPa: 1000
 Del. quantity cm3/
 > 1000S.: 23.00...29.00
 Shutoff
 electromagnet>Volt: 12.0

Start:

Speed 1/min: 100
 Del. quantity cm3/: 50.00...80.00
 mind> 1000S.: 50.00

| | |
|---|---|
| Shutoff electromagnet>Volt: 12.0 | 3rd speed 1/min: 2100 Charge press. hPa: 1000 Supply-pump pressure> bar: 7.50...8.10 > bar: - Shutoff electromagnet>Volt: 12.0 |
| Load-dependent start of delivery: Inj.-qty.dif.measurement: | Overflow quantity at overflow valve: 1st speed 1/min: 800 Charge press. hPa: 1000 Shutoff electromagnet>Volt: 12.0 Overflow : 75.00...119.50 quantity> cm3/10s: (50.00...134.50) |
| Speed 1/min: 1500 Charge press hPa: - Inj.-qty. cm3/ difference> 1000S.: - 8.0...16.0 * Shutoff electromagnet>Volt: 12.0 TD-travel dif.measurement | 2nd speed 1/min: 2100 Charge press. hPa: 1000 Shutoff electromagnet>Volt: 12.0 Overflow : 97.30...180.70 quantity> cm3/10s: (82.30...195.70) |
| 1.Speed 1/min: 1500 Charge press hPa: - TD-travel difference> mm: - 0.8...0.9 * Shutoff electromagnet>Volt: 12.0 | Delivery-quant. and breakaway char.: |
| Inspection-pump test specifications Test specifications in parentheses | 1nd speed 1/min: 750 Charge-air pressure-setting point> hPa: 450 LDA-stroke mm: 6.7 Shutoff electromagnet>Volt: 12.0 Del. quantity cm3/: 47.00...48.00 > 1000S.: (45.00...50.00) 2nd speed 1/min: 2700 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12.0 Del. quantity cm3/: 0.00...7.00 > 1000S.: - 3rd speed 1/min: 2500 Charge press. hPa: 1000 Shutoff electromagnet>Volt: 12.0 Del. quantity cm3/: 11.0...19.0 > 1000S.: (10.0...20.0) 4th speed 1/min: 2400 Charge press. hPa: 1000 Shutoff electromagnet>Volt: 12.0 Del. quantity cm3/: 23.0...29.0 > 1000S.: (21.0...31.0) 5th speed 1/min: 2100 Charge press. hPa: 1000 Shutoff electromagnet>Volt: 12.0 Del. quantity cm3/: 50.00...53.00 > 1000S.: (49.00...54.00) 6th speed 1/min: 1500 Charge press. hPa: 1000 |
| Timing-device characteristic: | |
| 1st speed 1/min: 1000 Charge press hPa: 1000 TD travel mm: 2.7...2.9 > mm: (2.2...3.4) electromagnet>Volt: 12.0 2nd speed 1/min: 1500 Charge press hPa: 1000 TD travel mm: 4.9...5.5 > mm: (4.5...5.9) Shutoff electromagnet>Volt: 12.0 3rd speed 1/min: 2100 Charge press hPa: 1000 TD travel mm: 7.60...8.20 > mm: (7.20...8.60) Shutoff electromagnet>Volt: 12.0 | |
| Supply-pump pressure characteristic: | |
| 1st speed 1/min: 1000 Charge press. hPa: 1000 Supply-pump pressure> bar: 4.50...5.10 > bar: - Shutoff electromagnet>Volt: 12.0 2nd speed 1/min: 1500 Charge press. hPa: 1000 Supply-pump pressure> bar: 5.90...6.50 > bar: - Shutoff electromagnet>Volt: 12.0 | |

Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 51.5...52.5
 > 1000S.: (50.0...54.0)
 7th speed 1/min: 800
 Charge press. hPa: 1000
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 53.5...56.5
 > 1000S.: (52.5...57.5)
 8th speed 1/min: 600
 Charge press. hPa: -
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 40.0...41.0
 > 1000S.: (38.0...43.0)

+ difference> 1000S.: -
 Shutoff
 electromagnet>Volt: 12.0
 2nd speed 1/min: 1500
 Charge press. hPa: -
 Inj.-qty. cm³/: 4.0...6.0 Z:
 difference> 1000S.: -
 Shutoff
 electromagnet Volt: 12.0
 3rd speed 1/min: 1500
 Charge press. hPa: ALFB
 Inj.-qty. cm³/: 4.0...6.0 Z:
 difference> 1000S.: -
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
 1st speed 1/min: 1500
 Charge press. hPa: -
 TD-travel : - 0.7...1.3 '
 difference mm: -
 Shutoff
 electromagnet>Volt: 12.0
 2nd speed 1/min: 1500
 Charge press. hPa: ALFB
 TD-travel : 0.0...0.6 :
 difference mm: -
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0

Damper set qty.:
LFG-setting:
Idle delivery:

1st speed 1/min: 450
 Shutoff
 electromagnet Volt: 12.0
 Del. quantity cm³/: 12.00...16.00
 > 1000S.: (10.00...18.00)
 2nd speed 1/min: 500
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 4.0...10.0
 > 1000S.: (2.5...11.5)

Rest delivery:

1st speed 1/min: 800
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 3.50...5.50
 > 1000S.: (2.50...6.50)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1500
 Charge press. hPa: -
 Inj.-qty. cm³/ : - 9.0..11.0 "

SP press.-dif.measurement:
pompa di mandata (FP):
 1st speed 1/min: 1500
 Charge press. hPa: -
 Supply pump-
 pressure > : - 0.1...0.3 "
 difference bar: -
 Shutoff
 electromagnet>Volt: 12.0

Automatic starting fuel delivery:

1st speed 1/min: 220
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 52.00...78.00
 > 1000S.: -

2nd speed 1/min: 400
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 25.00...45.00
 > 1000S.: -

3rd speed 1/min: 100

Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 50.0...80.0
> 1000s.: -

Shutoff electromagnet:

Cut-in
>min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.2...3.4
KF mm: 5.2...5.6
MS mm: 1.4...1.8
LDA stroke mm: 6.7
Ya mm: 37.2...39.2
Yb mm: 38.2...46.8

Remarks:

:

Ya = Distance between VE flange and
speed-control lever in idle
position

Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position

Measurement point = edge of control
lever on distributor-head end

Z = Absolute delivery

On initial measurement, screw in
residual-quantity adjusting screw 2 mm.

Following pump adjustment, screw out
residual-quantity adjusting screw 2 mm.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA
 Edition : 01.08.95
 replaces : -
 Calibrating oil : ISO-4113

Injection pump : VE4/9F2100R508-2
 Type number : 0 460 494 408
 Customer Part-No. :

Customer-specific information
 Customer : FIAT-AUTO

Engine : M718 NT19.L

Power KW: 66

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil
 return>temp. > °C
 with>thermometer> : 40.00...48.00
 Electronically> : 42.00...50.00

Inlet press., bar : 0.30. .0.40

Calibrating nozzle-holder
 assembly> : 1 688 901 022

Opening
 Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
 x Wall>thickness : 2.00
 x Length> mm: 450

Start of delivery
 Prestroke mm: -
 > (from BDC): -

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
 Charge press. hPa: 1000
 Setting value mm: 2.70...2.90
 Shutoff
 electromagnet>Volt: 12.0

Supply-pump pressure

Speed 1/min: 1000
 Charge press hPa: 1000
 Setting value bar: 4.50...5.10
 Shutoff
 electromagnet>Volt: 12.0

Full-load del. with charge press.:

Speed 1/min: 1500
 Charge press. hPa: 1000
 Del. quantity cm³/
 > 1000S.: 51.50...52.50
 Shutoff
 electromagnet>Volt: 12.0
 Dispersion cm³/: 2.5
 > 1000S.: (2.5)

Full-load del. w/out charge press.:

Speed 1/min: 600
 Del. quantity cm³/
 > 1000S.: 40.00...41.00
 Shutoff
 electromagnet>Volt: 12.0

Low-idle speed regulation

Speed 1/min: 450
 Del. quantity cm³/
 > 1000S.: 12.0...16.0
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 2.5
 > 1000S.: (2.5)

Residual-Delivery Setting

Speed 1/min: 800
 Del. quantity cm³/
 > 1000S.: 3.50...5.50
 Shutoff
 electromagnet Volt: 12.0

Full-load speed regulation

Speed 1/min: 2400
 Charge press hPa: 1000
 Del. quantity cm³/
 > 1000S.: 23.00...29.00
 Shutoff
 electromagnet>Volt: 12.0

Start:

Speed 1/min: 100
 Del. quantity cm³/: 50.00...80.00
 mind> 1000S.: 50.00

Shutoff
electromagnet>Volt: 12.0

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1500
Charge press hPa: -
Inj.-qty. cm³/
difference> 1000S.: - 8.0...16.0 *
Shutoff
electromagnet>Volt: 12.0
TD-travel dif.measurement

1.Speed 1/min: 1500
Charge press hPa: -
TD-travel
difference> mm: - 0.8...0.9 *
Shutoff
electromagnet>Volt: 12.0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1000
Charge press hPa: 1000
TD travel mm: 2.7...2.9
> mm: (2.2...3.4)
electromagnet>Volt: 12.0
2nd speed 1/min: 1500
Charge press hPa: 1000
TD travel mm: 4.9...5.5
> mm: (4.5...5.9)
Shutoff
electromagnet>Volt: 12.0
3rd speed 1/min: 2100
Charge press hPa: 1000
TD travel mm: 7.60...8.20
> mm: (7.20...8.60)
Shutoff
electromagnet>Volt: 12.0

Supply-pump pressure characteristic:

1st speed 1/min: 1000
Charge press. hPa: 1000
Supply-pump
pressure> bar: 4.50...5.10
> bar: -
Shutoff
electromagnet>Volt: 12.0
2nd speed 1/min: 1500
Charge press. hPa: 1000
Supply-pump
pressure> bar: 5.90...6.50
> bar: -
Shutoff
electromagnet>Volt: 12.0

3rd speed 1/min: 2100
Charge press. hPa: 1000
Supply-pump
pressure> bar: 7.50...8.10
> bar: -
Shutoff
electromagnet>Volt: 12.0

Overflow quantity at overflow valve:

1st speed 1/min: 800
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Overflow : 75.00...119.50
quantity> cm³/10s: (50.00...134.50)
2nd speed 1/min: 2100
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Overflow : 97.30...180.70
quantity> cm³/10s: (82.30...195.70)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 750
Charge-air pressure-setting
point> hPa: 450
LDA-stroke mm: 6.7
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³: 47.00...48.00
> 1000S.: (45.00...50.00)
2nd speed 1/min: 2700
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12.0
Del. quantity cm³: 0.00...7.00
> 1000S.: -
3rd speed 1/min: 2500
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³: 11.0...19.0
> 1000S.: (10.0...20.0)
4th speed 1/min: 2400
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³: 23.0...29.0
> 1000S.: (21.0...31.0)
5th speed 1/min: 2100
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³: 50.00...53.00
> 1000S.: (49.00...54.00)
6th speed 1/min: 1500
Charge press. hPa: 1000

Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 51.5...52.5
 > 1000S.: (50.0...54.0)
 7th speed 1/min: 800
 Charge press. hPa: 1000
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 53.5...56.5
 > 1000S.: (52.5...57.5)
 8th speed 1/min: 600
 Charge press. hPa: -
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 40.0...41.0
 > 1000S.: (38.0...43.0)

Electr. shutoff:
 1st speed 1/min: 450
 Del. quantity cm³/: 0.00...3.00
 > 1000S.: -
 Shutoff
 electromagnet>volt: -
 KSB/AFB
 valve > Volt: 12.0

Damper set qty.:

LFG-setting:

Idle delivery:
 1st speed 1/min: 450
 Shutoff
 electromagnet Volt: 12.0
 Del. quantity cm³/: 12.00...16.00
 > 1000S.: (10.00...18.00)
 2nd speed 1/min: 500
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 4.0...10.0
 > 1000S.: (2.5...11.5)

Rest delivery:
 1st speed 1/min: 800
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 3.50...5.50
 > 1000S.: (2.50...6.50)

Load-dependent start of delivery:
 Inj.-qty.dif.measurement:
 1st speed 1/min: 1500
 Charge press. hPa: -
 Inj.-qty. cm³/ : - 9.0..11.0 "

difference> 1000S.: -
 Shutoff
 electromagnet>Volt: 12.0
 2nd speed 1/min: 1500
 Charge press. hPa: -
 Inj.-qty. cm³/: 4.0...6.0 Z'
 difference> 1000S.: -
 Shutoff
 electromagnet Volt: 12.0
 3rd speed 1/min: 1500
 Charge press. hPa: ALFB
 Inj.-qty. cm³/: 4.0...6.0 Z:
 difference> 1000S.: -
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0

TD-travel dif.measurement:
 correttore anticipo iniezione (SV):
 1st speed 1/min: 1500
 Charge press. hPa: -
 TD-travel : - 0.7...1.3 '
 difference mm: -
 Shutoff
 electromagnet>Volt: 12.0
 2nd speed 1/min: 1500
 Charge press. hPa: ALFB
 TD-travel : 0.0...0.6 :
 difference mm: -
 KSB/AFB
 valve > Volt: 12.0
 Shutoff
 electromagnet>Volt: 12.0

SP press.-dif.measurement:
 pompa di mandata (FP):
 1st speed 1/min: 1500
 Charge press. hPa: -
 Supply pump-
 pressure > : - 0.1...0.3 "
 difference bar: -
 Shutoff
 electromagnet>Volt: 12.0

Part-Load del.at 3rd inj.-qty.
 terza fermo della portata
 stop (EGR set)
 scarico) (ARF)
 gaz d'échappement-ARF)
 Spacing mm: 12.0

1st speed 1/min: 1000
 Charge press. hPa: -
 KSB/AFB
 valve > Volt: -
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 18.5..20.5**
 > 1000S.: (17.5...21.5)

Automatic starting fuel delivery:

1st speed 1/min: 220
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 52.00...78.00
> 1000S.: -

2nd speed 1/min: 400
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 25.00...45.00
> 1000S.: -

3rd speed 1/min: 100
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 50.0...80.0
> 1000S.: -

Shutoff electromagnet:

Cut-in
>min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

| | |
|------------|-----------------|
| K | mm: 3.2...3.4 |
| KF | mm: 5.2...5.6 |
| MS | mm: 1.4...1.8 |
| MS1 | mm: ** 1,85 V |
| LDA stroke | mm: 6.7 |
| Ya | mm: 37.2...39.2 |
| Yb | mm: 38.2...46.8 |

Remarks:

:
:

Ya = Distance between VE flange and
speed-control lever in idle
position

Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position

Measurement point = edge of control
lever on distributor-head end

residual-quantity adjusting screw 2 mm.

Following pump adjustment, screw out
residual-quantity adjusting screw 2 mm.

Z = Absolute delivery

On initial measurement, screw in

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test scheet : PEU
 Edition : 04.08.95
 replaces : -
 Calibrating oil : ISO-4113
 Injection pump : VE4/9F2250R445-5
 Type number : 0 460 494 409
 Customer Part-No. :

Customer-specific information
 Customer : PSA

Engine : XUD 9 TF-L

Power KW: 67

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
 return>temp. > °C
 with>thermometer> : 40.00...48.00
 Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly> : 1 688 901 022

Opening
 Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
 x Wall>thickness : 2.00
 x Length> mm: 450

Start of delivery
 Prestroke mm: -
 > (from BDC): -

Indicator setting
 Piston stroke> mm: 0,3
 Outlet> : A

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500

Charge press. hPa: 1000
 Setting value mm: 3.90...4.30
 Shutoff
 electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1500
 Charge press hPa: 1000
 Setting value bar: 5.40...6.00
 Shutoff
 electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250
 Charge press. hPa: 1000
 Del. quantity cm3/
 > 1000S.: 54.00...55.00
 Shutoff
 electromagnet>Volt: 12
 Dispersion cm3/: 2.0
 > 1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
 Del. quantity cm3/
 > 1000S.: 36.5...37.5
 Shutoff
 electromagnet>Volt: 12.0

Low-idle speed regulation

Speed 1/min: 440
 Del. quantity cm3/
 > 1000S.: 15.0...17.0
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 2.0
 > 1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 490
 Del. quantity cm3/
 > 1000S.: 8.00...9.00
 Shutoff
 electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2575
 Charge press hPa: 1000
 Del. quantity cm3/
 > 1000S.: 12.0...16.0
 Shutoff
 electromagnet>Volt: 12

Start:

Speed 1/min: 150
Del. quantity cm³/: 37.00...67.00
mind> 1000S.: 37.00
Shutoff
electromagnet>Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 900
Charge press hPa: 1000
TD travel mm: 0.80...1.60
> mm: (0.50...1.90)
electromagnet>Volt: 12.0
2nd speed 1/min: 1500
Charge press hPa: 1000
TD travel mm: 3.90...4.30
> mm: (3.40...4.80)
Shutoff
electromagnet>Volt: 12.0
3rd speed 1/min: 2000
Charge press hPa: 1000
TD travel mm: 6.10...6.90
> mm: (5.80...7.20)
Shutoff
electromagnet>Volt: 12.0

Supply-pump pressure characteristic:

1st speed 1/min: 900
Charge press. hPa: 1000
Supply-pump
pressure> bar: 3.90...4.50
> bar: -
Shutoff
electromagnet>Volt: 12
2nd speed 1/min: 1500
Charge press. hPa: 1000
Supply-pump
pressure> bar: 5.40...6.00
> bar: -
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 2000
Charge press. hPa: 1000
Supply-pump
pressure> bar: 6.50...7.10
> bar: -
Shutoff
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0

Overflow : 41.60...83.30
quantity> cm³/10s: (26.60...98.3)
2nd speed 1/min: 2150
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Overflow : 55.50...138.80
quantity> cm³/10s: (40.50...153.80)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 750
Charge-air pressure-setting
point> hPa: 350
LDA-stroke mm: 5.9
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 45.5...46.5
> 1000S.: (43.0...49.0)
2nd speed 1/min: 2750
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12.0
Del. quantity cm³/: 0.00...6.00
> 1000S.: (0.00...6.00)
3rd speed 1/min: 2575
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 12.0...16.0
> 1000S.: (10.0...18.00)
4th speed 1/min: 2375
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 34.0...44.0
> 1000S.: (33.0...45.0)
5th speed 1/min: 2150
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 49.10...51.10
> 1000S.: (47.90...52.30)
6th speed 1/min: 2000
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 51.0...53.0
> 1000S.: (49.8...54.2)
7th speed 1/min: 1250
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 54.0...55.0
> 1000S.: (52.3...56.7)
8th speed 1/min: 500
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0

Del. quantity cm³/: 46.80...49.80
> 1000S.: (45.30...51.30)
9th speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 36.50...37.50
> 1000S.: (34.00...40.00)

Mech. shutoff:

1st speed 1/min: 2000
Charge press. hPa: 1000
Del. quantity cm³/: 0.00...3.00
> 1000S.: (0.00...3.00)
Shutoff
electromagnet>volt: 12.0

Electr. shutoff:

1st speed 1/min: 400
Del. quantity cm³/: 0.00...3.00
> 1000S.: (0.00...3.00)
Shutoff
electromagnet>volt: -

Damper set qty.:

LFG-setting:

Idle delivery:

1st speed 1/min: 440
Shutoff
electromagnet Volt: 12.0
Del. quantity cm³/: 15.0...17.0
> 1000S.: (12.0...20.0)

High Idle:

1st speed 1/mi: 490
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 15.0...17.0
> 1000S.: (12.0...20.0)

Rest delivery:

1st speed 1/min: 490
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 8.0...9.0
> 1000S.: (6.5...10.5)

Automatic starting fuel delivery:

1st speed 1/min: 200
Shutoff
electromagnet>Volt: 12.0

Del. quantity cm³/: 45.50...60.50
> 1000S.: -
2nd speed 1/min: 380
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 25.00...45.00
> 1000S.: (25.00...45.00)

4th speed 1/min: 150
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 37.00...67.00
> 1000S.: (37.00...67.00)

Shutoff electromagnet:

Cut-in
>min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

| | |
|----|-----------------|
| K | mm: 3.2...3.4 |
| KF | mm: KOT |
| MS | mm: 1.1...1.5 |
| Ya | mm: 25.8...29.8 |
| Yb | mm: 68.0...82.0 |

Remarks:

:
:
Ya = Distance between VE flange and speed-control lever in idle position

Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEU
 Edition : 04.08.95
 replaces : -
 Calibrating oil : ISO-4113
 Injection pump : VE4/9F2250R445-6
 Type number : 0 460 494 410
 Customer Part-No. :

Customer-specific information
 Customer : PSA

Engine : XUD 9 TF-L

Power KW: 67

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
 return>temp. > °C
 with>thermometer> : 40.00...48.00
 Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly> : 1 688 901 022

Opening
 Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
 x Wall>thickness : 2.00
 x Length> mm: 450

Start of delivery
 Prestroke mm: -
 > (from BDC): -

Indicator setting
 Piston stroke> mm: 0,3
 Outlet> : A

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500

Charge press. hPa: 1000
 Setting value mm: 3.90...4.30
 Shutoff
 electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1500
 Charge press hPa: 1000
 Setting value bar: 5.40...6.00
 Shutoff
 electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250
 Charge press. hPa: 1000
 Del. quantity cm3/
 > 1000S.: 54.00...55.00
 Shutoff
 electromagnet>Volt: 12
 Dispersion cm3/: 2.0
 > 1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
 Del. quantity cm3/
 > 1000S.: 36.5...37.5
 Shutoff
 electromagnet>Volt: 12.0

Low-idle speed regulation

Speed 1/min: 440
 Del. quantity cm3/
 > 1000S.: 15.0...17.0
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 2.0
 > 1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 490
 Del. quantity cm3/
 > 1000S.: 8.00...9.00
 Shutoff
 electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2575
 Charge press hPa: 1000
 Del. quantity cm3/
 > 1000S.: 12.0...16.0
 Shutoff
 electromagnet>Volt: 12

Start:

Speed 1/min: 150
Del. quantity cm³/: 37.00...67.00
mind> 1000S.: 37.00
Shutoff
electromagnet>Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 900
Charge press hPa: 1000
TD travel mm: 0.80...1.60
> mm: (0.50...1.90)
electromagnet>Volt: 12.0
2nd speed 1/min: 1500
Charge press hPa: 1000
TD travel mm: 3.90...4.30
> mm: (3.40...4.80)
Shutoff
electromagnet>Volt: 12.0
3rd speed 1/min: 2000
Charge press hPa: 1000
TD travel mm: 6.10...6.90
> mm: (5.80...7.20)
Shutoff
electromagnet>Volt: 12.0

Supply-pump pressure characteristic:

1st speed 1/min: 900
Charge press. hPa: 1000
Supply-pump
pressure> bar: 3.90...4.50
> bar: -
Shutoff
electromagnet>Volt: 12
2nd speed 1/min: 1500
Charge press. hPa: 1000
Supply-pump
pressure> bar: 5.40...6.00
> bar: -
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 2000
Charge press. hPa: 1000
Supply-pump
pressure> bar: 6.50...7.10
> bar: -
Shutoff
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0

Overflow : 41.60...83.30
quantity> cm³/10s: (26.60...98.3)
2nd speed 1/min: 2150
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Overflow : 55.50...138.80
quantity> cm³/10s: (40.50...153.80)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 750
Charge-air pressure-setting
point> hPa: 350
LDA-stroke mm: 5.9
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 45.5...46.5
> 1000S.: (43.0...49.0)
2nd speed 1/min: 2750
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12.0
Del. quantity cm³/: 0.00...6.00
> 1000S.: (0.00...6.00)
3rd speed 1/min: 2575
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 12.0...16.0
> 1000S.: (10.0...18.00)
4th speed 1/min: 2375
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 34.0...44.0
> 1000S.: (33.0...45.0)
5th speed 1/min: 2150
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 49.10...51.10
> 1000S.: (47.90...52.30)
6th speed 1/min: 2000
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 51.0...53.0
> 1000S.: (49.8...54.2)
7th speed 1/min: 1250
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 54.0...55.0
> 1000S.: (52.3...56.7)
8th speed 1/min: 500
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0

Del. quantity cm³/: 46.80...49.80
> 1000S.: (45.30...51.30)
9th speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 36.50...37.50
> 1000S.: (34.00...40.00)

Mech. shutoff:

1st speed 1/min: 2000
Charge press. hPa: 1000
Del. quantity cm³/: 0.00...3.00
> 1000S.: (0.00...3.00)
Shutoff
electromagnet>volt: 12.0

Electr. shutoff:

1st speed 1/min: 400
Del. quantity cm³/: 0.00...3.00
> 1000S.: (0.00...3.00)
Shutoff
electromagnet>volt: -

Damper set qty.:

LFG-setting:

Idle delivery:

1st speed 1/min: 440
Shutoff
electromagnet Volt: 12.0
Del. quantity cm³/: 15.0...17.0
> 1000S.: (12.0...20.0)

High Idle:

1st speed 1/mi: 490
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 15.0...17.0
> 1000S.: (12.0...20.0)

Rest delivery:

1st speed 1/min: 490
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 8.0...9.0
> 1000S.: (6.5...10.5)

Automatic starting fuel delivery:

1st speed 1/min: 200
Shutoff
electromagnet>Volt: 12.0

Del. quantity cm³/: 45.50...60.50
> 1000S.: -
2nd speed 1/min: 380
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 25.00...45.00
> 1000S.: (25.00...45.00)

4th speed 1/min: 150
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 37.00...67.00
> 1000S.: (37.00...67.00)

Shutoff electromagnet:

Cut-in
>min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

| Designation | |
|-------------|-----------------|
| K | mm: 3.2...3.4 |
| KF | mm: KOT |
| MS | mm: 1.1...1.5 |
| Ya | mm: 25.8...29.8 |
| Yb | mm: 68.0...82.0 |

Remarks:

:
:
Ya = Distance between VE flange and speed-control lever in idle position

Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position

Measurement point = edge of control lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEU
 Edition : 04.08.95
 replaces : -
 Calibrating oil : ISO-4113

 Injection pump : VE4/9F2250R445-7
 Type number : 0 460 494 411
 Customer Part-No. :

Customer-specific information

Customer : PSA

Engine : XUD 9 TF-L

Power KW: 67

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
 return>temp. > °C
 with>thermometer> : 40.00...48.00
 Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly> : 1 688 901 022

Opening
 Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
 x Wall>thickness : 2.00
 x Length> mm: 450

Start of delivery
 Prestroke mm: -
 > (from BDC): -

Indicator setting
 Piston stroke> mm: 0,3
 Outlet> : A

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500

charge press. hPa: 1000
 Setting value mm: 3.90...4.30
 Shutoff
 electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1500
 Charge press hPa: 1000
 Setting value bar: 5.40...6.00
 Shutoff
 electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250
 Charge press. hPa: 1000
 Del. quantity cm3/
 > 1000S.: 54.00...55.00
 Shutoff
 electromagnet>Volt: 12
 Dispersion cm3/: 2.0
 > 1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
 Del. quantity cm3/
 > 1000S.: 36.5...37.5
 Shutoff
 electromagnet>Volt: 12.0

Low-idle speed regulation

Speed 1/min: 440
 Del. quantity cm3/
 > 1000S.: 15.0...17.0
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 2.0
 > 1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 490
 Del. quantity cm3/
 > 1000S.: 8.00...9.00
 Shutoff
 electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2575
 Charge press hPa: 1000
 Del. quantity cm3/
 > 1000S.: 12.0...16.0
 Shutoff
 electromagnet>Volt: 12

Start:

Speed 1/min: 150
Del. quantity cm³/: 37.00...67.00
mind> 1000S.: 37.00
Shutoff
electromagnet>Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 900
Charge press hPa: 1000
TD travel mm: 0.80...1.60
> mm: (0.50...1.90)
electromagnet>Volt: 12.0
2nd speed 1/min: 1500
Charge press hPa: 1000
TD travel mm: 3.90...4.30
> mm: (3.40...4.80)
Shutoff
electromagnet>Volt: 12.0
3rd speed 1/min: 2000
Charge press hPa: 1000
TD travel mm: 6.10...6.90
> mm: (5.80...7.20)
Shutoff
electromagnet>Volt: 12.0

Supply-pump pressure characteristic:

1st speed 1/min: 900
Charge press. hPa: 1000
Supply-pump
pressure> bar: 3.90...4.50
> bar: -
Shutoff
electromagnet>Volt: 12
2nd speed 1/min: 1500
Charge press. hPa: 1000
Supply-pump
pressure> bar: 5.40...6.00
> bar: -
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 2000
Charge press. hPa: 1000
Supply-pump
pressure> bar: 6.50...7.10
> bar: -
Shutoff
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0

Overflow : 41.60...83.30
quantity> cm³/10s: (26.60...98.3)
2nd speed 1/min: 2150
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Overflow : 55.50...138.80
quantity> cm³/10s: (40.50...153.80)

Delivery-quant. and breakaway char.:

1st speed 1/min: 750
Charge-air pressure-setting
point> hPa: 350
LDA-stroke mm: 5.9
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 45.5...46.5
> 1000S.: (43.0...49.0)
2nd speed 1/min: 2750
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12.0
Del. quantity cm³/: 0.00...6.00
> 1000S.: (0.00...6.00)
3rd speed 1/min: 2575
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 12.0...16.0
> 1000S.: (10.0...18.00)
4th speed 1/min: 2375
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 34.0...44.0
> 1000S.: (33.0...45.0)
5th speed 1/min: 2150
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 49.10...51.10
> 1000S.: (47.90...52.30)
6th speed 1/min: 2000
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 51.0...53.0
> 1000S.: (49.8...54.2)
7th speed 1/min: 1250
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 54.0...55.0
> 1000S.: (52.3...56.7)
8th speed 1/min: 500
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12.0

Det. quantity cm³/: 46.80...49.80
> 1000S.: (45.30...51.30)
9th speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet>Volt: 12.0
Det. quantity cm³/: 36.50...37.50
> 1000S.: (34.00...40.00)

Mech. shutoff:

1st speed 1/min: 2000
Charge press. hPa: 1000
Del. quantity cm³/: 0.00...3.00
> 1000S.: (0.00...3.00)
Shutoff
electromagnet>volt: 12.0

Electr. shutoff:

1st speed 1/min: 400
Del. quantity cm³/: 0.00...3.00
> 1000S.: (0.00...3.00)
Shutoff
electromagnet>volt: -

Damper set qty.:

LFG-setting:

Idle delivery:

1st speed 1/min: 440
Shutoff
electromagnet Volt: 12.0
Del. quantity cm³/: 15.0...17.0
> 1000S.: (12.0...20.0)

High Idle:

1st speed 1/mi: 490
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 15.0...17.0
> 1000S.: (12.0...20.0)

Rest delivery:

1st speed 1/min: 490
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 8.0...9.0
> 1000S.: (6.5...10.5)

Automatic starting fuel delivery:

1st speed 1/min: 200
Shutoff
electromagnet>Volt: 12.0

Det. quantity cm³/: 45.50...60.50
> 1000S.: -
2nd speed 1/min: 380
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 25.00...45.00
> 1000S.: (25.00...45.00)

4th speed 1/min: 150
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 37.00...67.00
> 1000S.: (37.00...67.00)

Shutoff electromagnet:

Cut-in
>min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

| Designation | |
|-------------|-----------------|
| K | mm: 3.2...3.4 |
| KF | mm: KOT |
| MS | mm: 1.1...1.5 |
| Ya | mm: 25.8...29.8 |
| Yb | mm: 68.0...82.0 |

Remarks:

:
:
Ya = Distance between VE flange and speed-control lever in idle position
Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VW
 Edition : 04.08.95
 replaces : -
 Calibrating oil : ISO-4113

Injection pump : VE4/9F2200R603-1
 Type number : 0 460 494 413
 Customer Part-No. :

Customer-specific information
 Customer : VW

Engine : 1.9 L UD MVEG2

Power KW: 55

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
 return>temp. > °C
 with>thermometer> : 40.00...48.00
 Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly> : 1 688 901 111

Opening
 Pressure> bar: 147.00...150.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
 x Wall>thickness : 2.00
 x Length> mm: 450

Start of delivery
 Prestroke mm: -
 > (from BDC): -

Indicator setting
 Piston stroke> mm: 0,8
 Outlet> : A

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250

Charge press. hPa: 750
 Setting value mm: 5.30...5.70
 Shutoff
 electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1250
 Charge press hPa: 750
 Setting value bar: 5.50...6.10
 Shutoff
 electromagnet>Volt: 12

Full-Load del. with charge press.:

Speed 1/min: 1250
 Charge press. hPa: 750
 Del. quantity cm³/
 > 1000S.: 46.00...47.00
 Shutoff
 electromagnet>Volt: 12
 Dispersion cm³/: 2.0
 > 1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 700
 Del. quantity cm³/
 > 1000S.: 38.5...42.9
 Shutoff
 electromagnet>Volt: 12.0

Low-idle speed regulation

Speed 1/min: 450
 Del. quantity cm³/
 > 1000S.: 20.0...24.0
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 2.0
 > 1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 550
 Del. quantity cm³/
 > 1000S.: 6.50...9.50
 Shutoff
 electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2525
 Charge press hPa: 750
 Del. quantity cm³/
 > 1000S.: 16.0...24.0
 Shutoff
 electromagnet>Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/: 35.50...50.50
mind> 1000s.: 35.50
Shutoff
electromagnet>Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 750
Charge press hPa: 750
TD travel mm: 3.00...3.80
> mm: (2.60...4.20)
electromagnet>Volt: 12.0
2nd speed 1/min: 1250
Charge press hPa: 750
TD travel mm: 5.30...5.70
> mm: (4.70...6.30)
Shutoff
electromagnet>Volt: 12.0
3rd speed 1/min: 2000
Charge press hPa: 750
TD travel mm: 8.20...9.00
> mm: (7.80...9.40)
Shutoff
electromagnet>Volt: 12.0

Supply-pump pressure characteristic:

1st speed 1/min: 750
Charge press. hPa: 750
Supply-pump
pressure> bar: 4.00...4.60
> bar: -
Shutoff
electromagnet>Volt: 12
2nd speed 1/min: 1250
Charge press. hPa: 750
Supply-pump
pressure> bar: 5.50...6.10
> bar: -
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 2000
Charge press. hPa: 750
Supply-pump
pressure> bar: 7.70...8.30
> bar: -
Shutoff
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 1250
Charge press. hPa: 750
Shutoff
electromagnet>volt: 12.0

Overflow : 43.00...112.5
quantity> cm³/10s: (28.00...127.5)
2nd speed 1/min: 2100
Charge press. hPa: 750
Shutoff
electromagnet>Volt: 12.0
Overflow : 41.50...152.70
quantity> cm³/10s: (26.50...167.70)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 2750
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12.0
Del. quantity cm³/: 0.00...3.00
> 1000s.: -
3rd speed 1/min: 2525
Charge press. hPa: 750
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 18.0...22.0
> 1000s.: (16.0...24.00)
4th speed 1/min: 2400
Charge press. hPa: 750
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 29.5...39.5
> 1000s.: (38.5...40.5)
5th speed 1/min: 2100
Charge press. hPa: 750
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 45.20...47.20
> 1000s.: (44.00...48.40)
6th speed 1/min: 1250
Charge press. hPa: 750
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 46.0...47.0
> 1000s.: (44.3...48.7)
7th speed 1/min: 700
Charge press. hPa: -
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 38.5...42.9
> 1000s.: -

Mech. shutoff:

1st speed 1/min: 2000
Charge press. hPa: 1000
Del. quantity cm³/: 0.00...3.00
> 1000s.: (0.00...3.00)
Shutoff
electromagnet>volt: 12.0

Electr. shutoff:

1st speed 1/min: 450
Del. quantity cm³/: 0.00...3.00
> 1000S.: (0.00...3.00)

Shutoff
electromagnet>volt: -

Damper set qty.:

LFG-setting:

Idle delivery:

1st speed 1/min: 450
Shutoff
electromagnet Volt: 12.0
Del. quantity cm³/: 20.0...24.0
> 1000S.: (18.0...26.0)

High Idle:

1st speed 1/mi: 550
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 14.0...22.0
> 1000S.: -

Rest delivery:

1st speed 1/min: 550
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 6.5...9.5
> 1000S.: (6.0...10.0)

Automatic starting fuel delivery:

1st speed 1/min: 180
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 35.00...55.00
> 1000S.: -

2nd speed 1/min: 380
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 31.00...51.00
> 1000S.: (31.00...51.00)

4th speed 1/min: 100
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 35.50...50.50
> 1000S.: -

Shutoff electromagnet:

Cut-in
>min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

| | |
|----|-----------------|
| K | mm: 3.6...3.8 |
| KF | mm: KOT |
| MS | mm: 1.0...1.4 |
| Ya | mm: 36.0...40.0 |
| Yb | mm: 48.6...58.4 |

Remarks:

:
:
Ya = Distance between VE flange and speed-control lever in idle position
Measurement point = edge of control lever on drive end

:
:
Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VW
 Edition : 31.07.95
 replaces : -
 Calibrating oil : ISO-4113

Injection pump : VE4/9F2300R597-5
 Type number : 0 460 494 414
 Customer Part-No. :

Customer-specific information

Customer : VW

Engine : 1.9L UD A3/B4

Power KW: 55

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
 return>temp. > °C
 with>thermometer> : 40.00...48.00
 Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly> : 1 688 901 000

Opening
 Pressure> bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
 x Wall>thickness : 2.00
 x Length> mm: 840

Start of delivery
 Prestroke mm: -
 > (from BDC): -

Indicator setting
 Piston stroke> mm: 0.8
 Outlet> : A

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250

Charge press. hPa: 750
 Setting value mm: 4.30...4.50
 Shutoff
 electromagnet>Volt: 12.0

Supply-pump pressure

Speed 1/min: 1250
 Charge press hPa: 750
 Setting value bar: 5.40...6.00
 Shutoff
 electromagnet>Volt: 12.0

Full-load del. with charge press.:

Speed 1/min: 1250
 Charge press. hPa: 750
 Del. quantity cm3/
 > 1000s.: 50.00...51.00
 Shutoff
 electromagnet>Volt: 12.0
 Dispersion cm3/: 2.5
 > 1000s.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 450
 Del. quantity cm3/
 > 1000s.: 37.2...43.2
 Shutoff
 electromagnet>Volt: 12.0

Low-idle speed regulation

Speed 1/min: 450
 Del. quantity cm3/
 > 1000s.: 16.0...18.0
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 2.0
 > 1000s.: (3.0)

Residual-Delivery Setting

Speed 1/min: 550
 Del. quantity cm3/
 > 1000s.: 7.00...8.00
 Shutoff
 electromagnet Volt: 12.0

Full-load speed regulation

Speed 1/min: 2600
 Charge press hPa: 750
 Del. quantity cm3/
 > 1000s.: 9.0...13.0
 Shutoff
 electromagnet>Volt: 12.0

Start:

Speed 1/min: 100
 Del. quantity cm³/: 32.50...47.50
 mind> 1000S.: 32.50
 Shutoff
 electromagnet>Volt: 12.0

Load-dependent start of delivery:
 Inj.-qty.dif.measurement:

Speed 1/min: 1250
 Charge press hPa: 750
 Inj.-qty. cm³/
 difference> 1000S.: - 7.0...11.0 *
 Shutoff
 electromagnet>Volt: 12.0
 TD-travel dif.measurement

1.Speed 1/min: 1250
 Charge press hPa: 750
 TD-travel
 difference> mm: - 1.9...2.1 *
 Shutoff
 electromagnet>Volt: 12.0

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 750
 Charge press hPa: 750
 TD travel mm: 1.50...2.10
 > mm: (1.00...2.60)
 electromagnet>Volt: 12.0
 2nd speed 1/min: 1250
 Charge press hPa: 750
 TD travel mm: 4.30...4.50
 > mm: (3.60...5.20)
 Shutoff
 electromagnet>Volt: 12.0
 3rd speed 1/min: 2150
 Charge press hPa: 750
 TD travel mm: 8.00...8.60
 > mm: (7.50...9.10)
 Shutoff
 electromagnet>Volt: 12.0

Supply-pump pressure characteristic:

1st speed 1/min: 750
 Charge press. hPa: 750
 Supply-pump
 pressure> bar: 4.30...4.90
 > bar: -
 Shutoff
 electromagnet>Volt: 12.0
 2nd speed 1/min: 1250
 Charge press. hPa: 750
 Supply-pump

pressure> bar: 5.40...6.00
 > bar: -

Shutoff
 electromagnet>Volt: 12.0

3rd speed 1/min: 2200

Charge press. hPa: 750

Supply-pump

pressure> bar: 7.40...8.00
 > bar: -

Shutoff
 electromagnet>Volt: 12.0

Overflow quantity at overflow valve:

1st speed 1/min: 1250

Charge press. hPa: 750

Shutoff

electromagnet>Volt: 12.0

Overflow : 43.00...112.5

quantity> cm³/10s: (28.00...127.5)

2nd speed 1/min: 2100

Charge press. hPa: 750

Shutoff

electromagnet>Volt: 12.0

Overflow : 55.60...139.00

quantity> cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 2750

Charge press. hPa: 750

Shutoff

electromagnet Volt: 12.0

Del. quantity cm³/: 0.00...3.00

> 1000S.: (0.00...3.00)

3rd speed 1/min: 2600

Charge press. hPa: 750

Shutoff

electromagnet>Volt: 12.0

Del. quantity cm³/: 9.0...13.0

> 1000S.: (7.0...15.0)

4th speed 1/min: 2400

Charge press. hPa: 750

Shutoff

electromagnet>Volt: 12.0

Del. quantity cm³/: 32.5...42.5

> 1000S.: (31.5...43.5)

5th speed 1/min: 2100

Charge press. hPa: 750

Shutoff

electromagnet>Volt: 12.0

Del. quantity cm³/: 42.0...44.0

> 1000S.: (40.8...45.2)

6th speed 1/min: 1250

Charge press. hPa: 750

Shutoff

electromagnet>Volt: 12.0

Del. quantity cm³/: 50.0...51.0

> 1000S.: (48.3...52.7)

| | |
|--|--|
| 7th speed 1/min: 450 | pressure > : - 0.1...0.3 " |
| Charge press. hPa: - | difference> bar: - |
| Shutoff | Shutoff |
| electromagnet>Volt: 12.0 | electromagnet>Volt: 12.0 |
| Del. quantity cm ³ /: 37.2...43.2 | Part-load del.at 3rd inj.-qty. |
| > 1000S.: (34.7...45.7) | terza fermo della portata |
| Electr. shutoff: | stop (EGR set) |
| 1st speed 1/min: 450 | scarico) (ARF) |
| Del. quantity cm ³ /: 0.00...3.00 | gaz d'échappement-ARF) |
| > 1000S.: (0.00...3.00) | Spacing mm: ? |
| Shutoff | 1st speed 1/min: 1000 |
| electromagnet>volt: - | Charge press. hPa: 750 |
| Damper set qty.: | Shutoff |
| LFG-setting: | electromagnet>Volt: 12.0 |
| Idle delivery: | Del. quantity cm ³ /: 34.00...36.00 |
| 1st speed 1/min: 450 | > 1000S.: (32.00...38.00) |
| Shutoff | Automatic starting fuel delivery: |
| electromagnet Volt: 12.0 | 1st speed 1/min: 180 |
| Del. quantity cm ³ /: 16.0...18.0 | Shutoff |
| > 1000S.: (13.0...21.0) | electromagnet>Volt: 12.0 |
| High Idle: | Del. quantity cm ³ /: 35.00...55.00 |
| 1st speed 1/mi: 500 | > 1000S.: (35.00...55.00) |
| Shutoff | 2nd speed 1/min: 380 |
| electromagnet>Volt: 12.0 | Shutoff |
| Del. quantity cm ³ /: 16.0...18.0 | electromagnet>Volt: 12.0 |
| > 1000S.: (13.0...21.0) | Del. quantity cm ³ /: 31.00...51.00 |
| Rest delivery: | > 1000S.: (31.00...51.00) |
| 1st speed 1/min: 550 | 4th speed 1/min: 100 |
| Shutoff | Shutoff |
| electromagnet>Volt: 12.0 | electromagnet>Volt: 12.0 |
| Del. quantity cm ³ /: 7.0...8.0 | Del. quantity cm ³ /: 37.00...43.00 |
| > 1000S.: (5.5...9.5) | > 1000S.: (32.50...47.50) |
| Load-dependent start of delivery: | Shutoff magnet: |
| Inj.-qty.dif.measurement: | Cut-in |
| 1st speed 1/min: 1250 | >min voltage : 10.0 |
| Charge press. hPa: 750 | Rated voltage : 12.0 |
| Inj.-qty. cm ³ / : - 4.5...6.5 " | Mounting and assembly dimensions: |
| difference> 1000S.: - | Designation |
| Shutoff | K mm: 3.6...3.8 |
| electromagnet>Volt: 12.0 | KF mm: KOT |
| SP press.-dif.measurement: | MS mm: 1.0...1.4 |
| pompa di mandata (FP): | Ya mm: 37.9...41.6 |
| 1st speed 1/min: 1250 | Yb mm: 49.9...63.3 |
| Charge press. hPa: 750 | Remarks: |
| Supply pump- | : SPALTMAß A = 0.8-3.0 |
| | : |
| | Pump in stepped LDA |
| | Ya = Distance between VE flange and |

speed-control lever in idle
position

Measurement point = edge of control
lever on drive end

Y_b = Distance between VE flange and
speed-control lever in rated speed
position

Measurement point = edge of control
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VW
 Edition : 04.08.95
 replaces : -
 Calibrating oil : ISO-4113
 Injection pump : VE4/9F2200R604-1
 Type number : 0 460 494 416
 Customer Part-No. :

Customer-specific information
 Customer : VW

Engine : 1.9 L UD MVEG2

Power KW: 55

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
 return>temp. > °C
 with>thermometer> : 40.00...48.00
 Electronically> : 42.00...50.00

Inlet press., bar : 0.30. .0.40

Calibrating nozzle-holder
 assembly> : 1 688 901 111

Opening
 Pressure> bar: 147.00...150.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
 x Wall>thickness : 2.00
 x Length> mm: 450

Start of delivery
 Prestroke mm: -
 > (from BDC): -

Indicator setting
 Piston stroke> mm: 0,8
 Outlet> : A

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250

Charge press. hPa: 750
 Setting value mm: 5.30...5.70
 Shutoff
 electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1250
 Charge press hPa: 750
 Setting value bar: 5.50...6.10
 Shutoff
 electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250
 Charge press. hPa: 750
 Del. quantity cm3/
 > 1000S.: 46.00...47.00
 Shutoff
 electromagnet>Volt: 12
 Dispersion cm3/: 2.0
 > 1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 700
 Del. quantity cm3/
 > 1000S.: 38.5...42.9
 Shutoff
 electromagnet>Volt: 12.0

Low-idle speed regulation

Speed 1/min: 450
 Del. quantity cm3/
 > 1000S.: 20.0...24.0
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 2.0
 > 1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 550
 Del. quantity cm3/
 > 1000S.: 6.50...9.50
 Shutoff
 electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2525
 Charge press hPa: 750
 Del. quantity cm3/
 > 1000S.: 16.0...24.0
 Shutoff
 electromagnet>Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/: 35.50...50.50
mind> 1000S.: 35.50
Shutoff
electromagnet>Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 750
Charge press hPa: 750
TD travel mm: 3.00...3.80
> mm: (2.60...4.20)
electromagnet>Volt: 12.0
2nd speed 1/min: 1250
Charge press hPa: 750
TD travel mm: 5.30...5.70
> mm: (4.70...6.30)
Shutoff
electromagnet>Volt: 12.0
3rd speed 1/min: 2000
Charge press hPa: 750
TD travel mm: 8.20...9.00
> mm: (7.80...9.40)
Shutoff
electromagnet>Volt: 12.0

Supply-pump pressure characteristic:

1st speed 1/min: 750
Charge press. hPa: 750
Supply-pump
pressure> bar: 4.00...4.60
> bar: -
Shutoff
electromagnet>Volt: 12
2nd speed 1/min: 1250
Charge press. hPa: 750
Supply-pump
pressure> bar: 5.50...6.10
> bar: -
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 2000
Charge press. hPa: 750
Supply-pump
pressure> bar: 7.70...8.30
> bar: -
Shutoff
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 1250
Charge press. hPa: 750
Shutoff
electromagnet>volt: 12.0

Overflow : 43.00...112.5
quantity> cm³/10s: (28.00...127.5)
2nd speed 1/min: 2100
charge press. hPa: 750
Shutoff
electromagnet>Volt: 12.0
Overflow : 41.50...152.70
quantity> cm³/10s: (26.50...167.70)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 2750
charge press. hPa: 750
Shutoff
electromagnet Volt: 12.0
Del. quantity cm³/: 0.00...3.00
> 1000S.: -
3rd speed 1/min: 2525
Charge press. hPa: 750
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 18.0...22.0
> 1000S.: (16.0...24.00)
4th speed 1/min: 2400
Charge press. hPa: 750
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 29.5...39.5
> 1000S.: (38.5...40.5)
5th speed 1/min: 2100
Charge press. hPa: 750
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 45.20...47.20
> 1000S.: (44.00...48.40)
6th speed 1/min: 1250
Charge press. hPa: 750
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 46.0...47.0
> 1000S.: (44.3...48.7)
7th speed 1/min: 700
Charge press. hPa: -
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 38.5...42.9
> 1000S.: -

Mech. shutoff:

1st speed 1/min: 2000
Charge press. hPa: 1000
Del. quantity cm³/: 0.00...3.00
> 1000S.: (0.00...3.00)
Shutoff
electromagnet>volt: 12.0

Electr. shutoff:

1st speed 1/min: 450
Del. quantity cm³/: 0.00...3.00
> 1000S.: (0.00...3.00)

Shutoff
electromagnet>volt: -

Damper set qty.: -

LFG-setting:

Idle delivery:

1st speed 1/min: 450
Shutoff
electromagnet Volt: 12.0
Del. quantity cm³/: 20.0...24.0
> 1000S.: (18.0...26.0)

High Idle:

1st speed 1/mi: 550
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 14.0...22.0
> 1000S.: -

Rest delivery:

1st speed 1/min: 550
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 6.5...9.5
> 1000S.: (6.0...10.0)

Automatic starting fuel delivery:

1st speed 1/min: 180
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 35.00...55.00
> 1000S.: -

2nd speed 1/min: 380
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 31.00...51.00
> 1000S.: (31.00...51.00)

4th speed 1/min: 100
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 35.50...50.50
> 1000S.: -

Shutoff electromagnet:

Cut-in
>min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

| | |
|----|-----------------|
| K | mm: 3.6...3.8 |
| KF | mm: KOT |
| MS | mm: 1.0...1.4 |
| Ya | mm: 36.0...40.0 |
| Yb | mm: 48.6...58.4 |

Remarks:

:
:
Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VW
 Edition : 04.08.95
 replaces : -
 Calibrating oil : ISO-4113

Injection pump : VE4/9F2100R471-3
 Type number : 0 460 494 417
 Customer Part-No. :

Customer-specific information
 Customer : VW 1.9 L

Engine : UD T4

Power KW: 50.0

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
 return>temp. > °C
 with>thermometer> : 40.00...48.00
 Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly> : 1 688 901 111

Opening
 Pressure> bar: 147.00...150.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
 x Wall>thickness : 2.00
 x Length> mm: 450

Start of delivery
 Prestroke mm: -
 > (from BDC): -

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
 Setting value mm: 3.70...4.10
 Shutoff
 electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1250
 Setting value bar: 5.30...5.90
 Shutoff
 electromagnet>Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1250
 Del. quantity cm3/
 > 1000S.: 39.50...40.50
 Shutoff
 electromagnet>Volt: 12
 Dispersion cm3/: 2.5
 > 1000S.: (3.5)

Residual-Delivery Setting

Speed 1/min: 550
 Del. quantity cm3/
 > 1000S.: 5.0...6.0
 Shutoff
 electromagnet Volt: 12.0
 Dispersion cm3/: 2.0
 > 1000S.: (3.0)

Full-load speed regulation

Speed 1/min: 2400
 Del. quantity cm3/
 > 1000S.: 13.0...17.00
 Shutoff
 electromagnet>Volt: 12

Start:

Speed 1/min: 100
 Del. quantity cm3/: 40.00...90.00
 mind> 1000S.: 40.00
 Shutoff
 electromagnet>Volt: 12

Load-dependent start of delivery:
 Inj.-qty.dif.measurement:

Speed 1/min: 1250
 Inj.-qty. cm3/
 difference> 1000S.: - 7.0...13.0 *
 Shutoff
 electromagnet>Volt: 12.0
 TD-travel dif.measurement

1.Speed 1/min: 1250
 TD-travel
 difference> mm: - 0.9...1.1 *
 Shutoff
 electromagnet>Volt: 12.0

Inspection-pump test specifications

Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1250
TD travel mm: 3.7...4.1
> mm: (3.1...4.7)
electromagnet>Volt: 12.0
2nd speed 1/min: 1700
TD travel mm: 5.60...6.40
> mm: (5.20...6.80)

Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 750
TD travel mm: 1.10...1.90
> mm: (0.70...2.30)
Shutoff
electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 1250
Supply-pump
pressure> bar: 5.30...5.90
> bar: -
Shutoff
electromagnet>Volt: 12
2nd speed 1/min: 1700
Supply-pump
pressure> bar: 6.60...7.20
> bar: -
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 750
Supply-pump
pressure> bar: 3.80...4.40
> bar: -
Shutoff
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 750
Shutoff
electromagnet>Volt: 12
Overflow : 41.70...86.10
quantity> cm3/10s: (26.70...101.10)
2nd speed 1/min: 1850
Shutoff
electromagnet>Volt: 12
Overflow : 55.60...139.00
quantity> cm3/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 1650
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 0.0...3.0

> 1000S.: -
2nd speed 1/min: 2400
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 13.0...17.0
> 1000S.: (11.0...19.0)
3rd speed 1/min: 2250
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 24.0...34.0
> 1000S.: (23.0...35.0)
4th speed 1/min: 1850
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 40.0...42.0
> 1000S.: (38.8...43.2)
5th speed 1/min: 1250
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 39.50...40.50
> 1000S.: (37.80...42.20)
6th speed 1/min: 750
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 37.0...40.0
> 1000S.: (35.5...41.5)
7th speed 1/min: 450
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 36.0...42.0
> 1000S.: (33.5...44.5)

Electr. shutoff:

1st speed 1/min: 425
Del. quantity cm3/: 0.00...3.00
> 1000S.: (0.00...3.00)
Shutoff
electromagnet>volt: -

Damper set qty.:

LFG-setting:

Idle delivery:

1st speed 1/min: 425
Shutoff
electromagnet Volt: 12.0
Del. quantity cm3/: 5.5...7.5
> 1000S.: (2.5...10.5)

High Idle:

1st speed 1/mi: 500
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 5.5...7.5

> 1000S.: (2.5...10.5)

Rest delivery:

1st speed 1/min: 550
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 5.0...6.0
> 1000S.: (3.5...7.5)
2nd speed 1/min: 515
Shutoff
electromagnet Volt: 12.0
Del. quantity cm³/: 5.5...7.5
> 1000S.: (4.0...9.0)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1250
Inj.-qty. cm³/ : 0.0...3.0 Z "
difference> 1000S.: -
Shutoff
electromagnet>Volt: 12.0

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1250
TD-travel : - 1.3...1.7 "
difference> mm: - (0.9...2.1)
Shutoff
electromagnet>Volt: 12.0

SP press.-dif.measurement:
pompa di mandata (FP):
1st speed 1/min: 1250
Supply pump-
pressure > : - 0.7...1.1 "
difference> bar: - (0.5...1.3)
Shutoff
electromagnet>Volt: 12.0

Part-load del.at 3rd inj.-qty.
terza fermo della portata
stop (EGR set)
scarico) (ARF)
gaz d'échappement-ARF)
Spacing mm: 12.0

1st speed 1/min: 1000
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 21.0...23.0 *
> 1000S.: (19.0...25.0)

Automatic starting fuel delivery:

1st speed 1/min: 380
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 25.0...45.0

> 1000S.: -

2nd speed 1/min: 180
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 40.0...90.0
> 1000S.: -

3rd speed 1/min: 100
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 40.0...90.0
> 1000S.: -

Shutoff electromagnet:

Cut-in
>min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

| | |
|----|-----------------|
| K | mm: 3.2...3.4 |
| KF | mm: 5.1...5.5 |
| MS | mm: 1.2...1.4 |
| XK | mm: MIKROSCH. |
| XL | mm: 0.8...3.0 * |
| Ya | mm: 20.0...22.0 |
| Yb | mm: 61.5...72.5 |

Remarks:

:
:
Ya = Distance between VE flange and
speed-control lever in idle
position

Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position

Measurement point = edge of control
lever on distributor-head end

On initial measurement, screw in
residual-quantity adjusting screw 2 mm.

Following pump adjustment, screw out
residual-quantity adjusting screw 2 mm.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : IVECO
Edition : 08.08.95
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/9F2050R467-1
Type number : 0 460 494 419
Customer Part-No. :

Customer-specific information
Customer : IVECO SOFIM

Engine : 8140.97.2500

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 022

Opening
Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 450

Start of delivery
Prestroke mm: 0.2
> (from BDC): +0.02(0.04)

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1400
Charge press. hPa: 1000
Setting value mm: 5.10...5.50
Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1400
Charge press hPa: 1000
Setting value bar: 6.10...6.70
Shutoff
electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1200
Charge press. hPa: 1000
Del. quantity cm3/
> 1000S.: 67.5...68.5
Shutoff
electromagnet>Volt: 12.0
Dispersion cm3/: 3.0
> 1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
> 1000S.: 41.5...42.5
Shutoff
electromagnet>Volt: 12

Residual-Delivery Setting

Speed 1/min: 550
Charge press. hPa: -
Del. quantity cm3/
> 1000S.: 0.5...5.5
Shutoff
electromagnet Volt: 12.0

Full-load speed regulation

Speed 1/min: 2400
Charge press hPa: 1000
Del. quantity cm3/
> 1000S.: 35.00...41.00
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 50.00...74.00
mind> 1000S.: 50.00
Shutoff
electromagnet>Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250
Charge press hPa: 1000
Inj.-qty. cm3/
difference> 1000S.: - 13.0..26.0 *
Shutoff

electromagnet>Volt: 12.0
 TD-travel dif.measurement
 1.Speed 1/min: 1250
 TD-travel
 difference> mm: - 0.7...0.9 *
 Shutoff
 electromagnet>Volt: 12.0
 Inspection-pump test specifications
 Test specifications in parentheses
 Timing-device characteristic:
 1st speed 1/min: 1000
 Charge press hPa: 1000
 TD travel mm: 2.2...3.0
 > mm: (1.9...3.3)
 electromagnet>Volt: 12.0
 2nd speed 1/min: 1400
 Charge press hPa: 1000
 TD travel mm: 5.10...5.50
 > mm: (4.80...5.80)
 Shutoff
 electromagnet>Volt: 12
 3rd speed 1/min: 1800
 Charge press hPa: 1000
 TD travel mm: 8.10...8.90
 > mm: (7.80...9.20)
 Shutoff
 electromagnet>Volt: 12.0
 4th speed 1/min: 2050
 Charge press hPa: 1000
 TD travel mm: 9.60...10.4
 > mm: (9.30...10.7)
 Shutoff
 electromagnet>Volt: 12.0
 Supply-pump pressure characteristic:
 1st speed 1/min: 600
 Charge press. hPa: 1000
 Supply-pump
 pressure> bar: 3.10...3.70
 > bar: -
 Shutoff
 electromagnet>Volt: 12
 2nd speed 1/min: 1400
 Charge press. hPa: 1000
 Supply-pump
 pressure> bar: 6.10...6.70
 > bar: -
 Shutoff
 electromagnet>Volt: 12
 3rd speed 1/min: 2050
 Charge press. hPa: 1000
 Supply-pump
 pressure> bar: 8.40...9.00
 > bar: -
 Shutoff

electromagnet>Volt: 12
 Overflow quantity at overflow valve:
 1st speed 1/min: 500
 Charge press. hPa: -
 Shutoff
 electromagnet>Volt: 12
 Overflow : 88.80...133.3
 quantity> cm³/10s: (73.80...148.30)
 2nd speed 1/min: 2050
 Charge press. hPa: 1000
 Shutoff
 electromagnet>Volt: 12
 Overflow : 97.20...180.50
 quantity> cm³/10s: (82.20...195.50)
 Delivery-quant. and breakaway char.:
 1nd speed 1/min: 600
 Charge-air pressure-setting
 point> hPa: 350
 LDA-stroke mm: 5.0
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm³/: 47.5...48.5
 > 1000s.: (45.5...50.5)
 2nd speed 1/min: 2750
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 0.00...3.0
 > 1000s.: -
 3rd speed 1/min: 2400
 Charge press. hPa: 1000
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 35.0...41.0
 > 1000s.: (34.0...42.0)
 4th speed 1/min: 2050
 Charge press. hPa: 1000
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 68.0...71.0
 > 1000s.: (67.3...71.7)
 5th speed 1/min: 1200
 Charge press. hPa: 1000
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm³/: 67.5...68.5
 > 1000s.: (66.0...70.0)
 6th speed 1/min: 500
 Charge press. hPa: -
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm³/: 41.5...42.5
 > 1000s.: (39.5...44.5)

Electr. shutoff:

1st speed 1/min: 425
Del. quantity cm³/: 0.00...3.00
> 1000S.: (0.00...3.00)
Shutoff
electromagnet>volt: -

Damper set qty.:

LFG-setting:

Idle delivery:

1st speed 1/min: 425
Shutoff
electromagnet Volt: 12.0
Del. quantity cm³/: 10.5...14.5
> 1000S.: (9.5...15.5)
Dispersion cm³/: 2.5
> 1000S.: (2.5)

High Idle:

1st speed 1/mi: 500
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 11.0...15.0
> 1000S.: (10.0...16.0)

Rest delivery:

1st speed 1/min: 550
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 0.5...5.5
> 1000S.: -

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1000
Charge press. hPa: 1000
Inj.-qty. cm³/ : -19.0...21.0
difference> 1000S.: -
Shutoff
electromagnet>Volt: 12.0
2nd speed 1/min: 1000
Charge press. hPa: 1000
Inj.-qty. cm³/: 4.0...6.0 Z'
difference> 1000S.: -
Shutoff
electromagnet Volt: 12.0

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1250
Charge press. hPa: 1000
TD-travel : - 1.1...1.9 '

difference> mm: -
Shutoff
electromagnet>Volt: 12.0

SP press.-dif.measurement:
pompa di mandata (FP):
1st speed 1/min: 1000
Charge press. hPa: 1000
Supply pump-
pressure > : - 0.1...0.3 "
difference> bar: -
Shutoff
electromagnet>Volt: 12.0

Part-load del.at 3rd inj.-qty.
terza fermo della portata
stop (EGR set)
scarico) (ARF)
gaz d'échappement-ARF)
Spacing mm: 12.0

1st speed 1/min: 1000
Charge press. hPa: -
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 22.0...24.0
> 1000S.: (20.5...25.5)

Automatic starting fuel delivery:

1st speed 1/min: 350
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 36.0...48.0
> 1000S.: -

2nd speed 1/min: 200
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 50.0...74.0
> 1000S.: -

3rd speed 1/min: 100
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm³/: 50.0...74.0
> 1000S.: -

Shutoff electromagnet:

Cut-in
>min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

| | |
|-------------|---------------|
| Designation | |
| K | mm: - |
| KF | mm: 5.6...6.0 |
| MS | mm: 1.1...1.5 |

FH mm: KSB=13MM
Ya mm: 41.3...43.3
Yb mm: 41.8...47.8

Ajustement Potentiometer:

Angle for
pot. > °: 25

Supply voltage

pot. > volt: 5.0

Output volt

pot. > volt: 2.1

Remarks:

:

:

Ya = Distance between VE flange and
speed-control lever in idle
position

Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position

Measurement point = edge of control
lever on distributor-head end

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 18.05.95
Test oil : ISO 4113

Combination No. : 0 401 438 015

Injection pump
Pump designation : PE8R120/500/6RS1508
EP type number : 0 411 428 002

Governor
Governor design. : RQV300...1150R6K
Governor no. : 0 421 415 006

Cust. part No. : 1 227 6687

Customer-spec. information

Customer : MWM
Motor : TBD 616-V16

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 085

Inlet press. bar : 3.0
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 4.95
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 21.00
Tolerance mm : + 0.50

Firing order : 1- 2- 7- 8- 3- 4-
: 5- 6

Phasing : 0-30-45-75-90-120
: -315-345

Tolerance : + 0.30
Check
tolerance °NW : + 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 14.40
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 387.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spred
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 8.0
 Rated speed rpm : 300
 Rack travel in mm : 5.00
 Tolerance mm : + 0.20
 Del. quantity
 cm³/1000 strokes : 30.0
 Tolerance
 cm³/1000 strokes : + 3.0
 Check tolerance
 cm³/1000S. : + 6.0
 Spred
 Tolerance
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
 guide sleeve
 travel mm : 0.93
 Tolerance mm : + 0.20
 Rated speed rpm : 1215
 guide sleeve
 travel mm : 9.95
 Tolerance mm : + 0.15
 Rated speed rpm : 336
 guide sleeve
 travel mm : 1.77
 Tolerance mm : + 0.25
 Rated speed rpm : 386
 guide sleeve
 travel mm : 2.44
 Tolerance mm : + 0.25
 Rated speed rpm : 790
 guide sleeve
 travel mm : 4.81
 Tolerance mm : + 0.25
 Rated speed rpm : 1430
 guide sleeve
 travel mm : 13.50
 Tolerance mm : + 0.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150
 Aneroid pressure
 hPa : -
 Del. quantity
 cm³/1000 strokes : 387.0
 Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 4.0
 Spred
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 8.0

RATED SPEED

rack travel mm : 13.40
 Rated speed rpm : 1195
 Tolerance 1/min : + 5
 rack travel mm : 4.00
 Tolerance 1/min : + 15
 rack travel mm : 0.50
 Tolerance mm : + 0.50

LOW IDLE

Testing:

Rated speed rpm : 300
 rack travel mm : 5.00
 Tolerance mm : + 0.10

TORQUE CONTROL

Rated speed rpm : 1150
 rack travel mm : 14.40
 Tolerance mm : + 0.05
 Rated speed rpm : 750
 rack travel mm : 11.40
 Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1150

Pressure hPa : 1500
rack travel mm : 14.40

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 1150
rack travel mm : 8.00

Rated speed rpm : 1150

Pressure hPa : 1030
rack travel mm : 14.30

Pressure hPa : 205
rack travel mm : 8.10

START CUT-OUT

Rated speed rpm : < 250
Check speed 1/min : < 270

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 300.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 200.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 13.40
Rated speed rpm : 1195
Tolerance 1/min : + 5

LOW IDLE

Rated speed rpm : 300
rack travel mm : 5.00
Tolerance mm : + 0.20
Del. quantity
cm³/1000 strokes : 30.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.07.95
Test oil : ISO 4113

Combination No. : 0 401 438 015

Injection pump
Pump designation : PE8R120/520/6RS1508
EP type number : 0 411 428 002

Governor
Governor design. : RQV300...1150R6K
Governor no. : 0 421 415 006

Cust. part No. : 1 227 6687

Customer-spec. information

Customer : MWM
Motor : TBD 616-V16

TEST BENCH REQUIREMENTS

Inlet Line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 4.95
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 21.00
Tolerance mm : + 0.50

Firing order : 1- 2- 7- 8- 3- 4-
: 5- 6

Phasing : 0-30-45-75-90-120
: -315-345

Tolerance : + 0.30
Check
tolerance °NW : + 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 14.40
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 387.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread
 Tolerance
 cm³/1000 strokes : 8.0

 Check tolerance
 cm³/1000S. : 12.0

 Rated speed rpm : 300

 Rack travel in mm : 5.00
 Tolerance mm : + - 0.20
 Del. quantity
 cm³/1000 strokes : 30.0
 Tolerance
 cm³/1000 strokes : + - 3.0
 Check tolerance
 cm³/1000S. : + - 6.0
 Spread
 Tolerance
 cm³/1000 strokes : 10.0
 Check tolerance
 cm³/1000S. : 14.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
 guide sleeve
 travel mm : 0.93
 Tolerance mm : + - 0.20

 Rated speed rpm : 1215
 guide sleeve
 travel mm : 9.95
 Tolerance mm : + - 0.15

 Rated speed rpm : 336
 guide sleeve
 travel mm : 1.77
 Tolerance mm : + - 0.25

 Rated speed rpm : 386
 guide sleeve
 travel mm : 2.44
 Tolerance mm : + - 0.25

 Rated speed rpm : 790
 guide sleeve
 travel mm : 4.81
 Tolerance mm : + - 0.25

 Rated speed rpm : 1430
 guide sleeve
 travel mm : 13.50
 Tolerance mm : + - 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1310

 Rack travel in mm : 9.00
 Tolerance mm : + - 1.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150
 Aneroid pressure
 hPa : -
 Del. quantity
 cm³/1000 strokes : 387.0
 Tolerance
 cm³/1000 strokes : + - 1.0
 Check tolerance
 cm³/1000S. : + - 4.0
 Spread
 Tolerance
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

RATED SPEED

control lever
 position degree : 121.0
 tolerance degree : + - 4.0

 rack travel mm : 13.40
 Rated speed rpm : 1195
 Tolerance 1/min : + - 5

 rack travel mm : 4.00
 Rated speed rpm : 1295
 Tolerance 1/min : + - 15

 rack travel mm : 0.50
 Tolerance mm : + - 0.50
 Rated speed rpm : 1400

LOW IDLE

control lever
 position degree : 73.0
 tolerance degree : + - 4.0

Testing:

Rated speed rpm : 300
 rack travel mm : 5.00
 Tolerance mm : + - 0.10

Rated speed rpm : 200
 CRT mm min. : > 6.50
 Rated speed rpm : 370

TORQUE CONTROL

Rated speed rpm : 1150
 rack travel mm : 14.40
 Tolerance mm : ± 0.05

 Rated speed rpm : 750
 rack travel mm : 11.80
 Tolerance mm : ± 0.10

 Rated speed rpm : 400
 rack travel mm : 10.20
 Tolerance mm : ± 0.30

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1150
 Pressure hPa : 1500
 rack travel mm : 14.40
 Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
 Rated speed rpm : 1150
 rack travel mm : 8.00
 Tolerance mm : ± 0.20

Rated speed rpm : 1150

Pressure hPa : 900
 rack travel mm : 13.50
 Tolerance mm : ± 0.20

Pressure hPa : 310
 rack travel mm : 9.00
 Tolerance mm : ± 0.05

START CUT-OUT

Rated speed rpm : < 250
 Check speed 1/min : < 270

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : -
 Rated speed rpm : 750
 Del. quantity cm3/1000 strokes : 310.0
 Tolerance cm3/1000 strokes : ± 3.0
 Check tolerance cm3/1000S. : ± 6.0
 Spread
 Tolerance cm3/1000 strokes : 10.0
 Check tolerance cm3/1000S. : 14.0

 Aneroid pressure hPa : -
 Rated speed rpm : 500
 Del. quantity cm3/1000 strokes : 200.0
 Tolerance cm3/1000 strokes : ± 1.0
 Check tolerance cm3/1000S. : ± 4.0
 Spread
 Tolerance cm3/1000 strokes : 10.0
 Check tolerance cm3/1000S. : 14.0

BREAKAWAY

Rack travel in mm : 13.40
 Rated speed rpm : 1195
 Tolerance 1/min : ± 5

LOW IDLE

Rated speed rpm : 300
 rack travel mm : 5.00
 Tolerance mm : ± 0.20
 Del. quantity cm3/1000 strokes : 30.0
 Tolerance cm3/1000 strokes : ± 3.0
 Check tolerance cm3/1000S. : ± 6.0
 Spread
 Tolerance cm3/1000 strokes : 10.0
 Check tolerance cm3/1000S. : 14.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 31.05.95
Test oil : ISO 4113

Combination No. : 0 401 848 827

Injection pump
Pump designation : PE8P110A320LS3862
EP type number : 0 411 818 727

Governor
Governor design. : RQV350...1050PA1205
Governor no. : 0 421 814 124

Cust. part No. : 0210749802

Customer-spec. information

Customer : MB-NFZ
Motor : OM442
Power KW : 195.0

TEST BENCH REQUIREMENTS

Inlet Line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Tolerance L/h : + 10.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0
x inside diameter : 2.0
x Length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 4.45
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 8- 7- 2- 6- 3
: - 5- 4- 1

Phasing : 0-45-90-135-180
: -225-270-315
Tolerance : + 0.30
Check
tolerance °NW : + 0.50

Start of delivery mark

Barrel no. : 8

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 12.00
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 115.0

Tolerance
cm³/1000 strokes : + 1.0

| | |
|--|----------|
| Check tolerance cm ³ /1000S. | : + 3.5 |
| <hr/> | |
| Spread Tolerance cm ³ /1000 strokes | : 8.5 |
| <hr/> | |
| Check tolerance cm ³ /1000S. | : 13.0 |
| <hr/> | |
| Rated speed rpm | : 350 |
| <hr/> | |
| Rack travel in mm | : 7.70 |
| Tolerance mm | : + 0.30 |
| Det. quantity cm ³ /1000 strokes | : 19.0 |
| Tolerance cm ³ /1000 strokes | : + 3.0 |
| Check tolerance cm ³ /1000S. | : + 5.5 |
| Spread Tolerance cm ³ /1000 strokes | : 6.5 |
| Check tolerance cm ³ /1000S. | : 11.0 |

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

| | |
|---------------------------|----------|
| Rated speed rpm | : 350 |
| guide sleeve travel mm | : 1.53 |
| Tolerance mm | : + 0.25 |
| <hr/> | |
| Rated speed rpm | : 1107 |
| guide sleeve travel mm | : 8.73 |
| Tolerance mm | : + 0.25 |
| <hr/> | |
| Rated speed rpm | : 880 |
| guide sleeve travel mm | : 5.84 |
| Tolerance mm | : + 0.25 |
| <hr/> | |
| Rated speed rpm | : 432 |
| guide sleeve travel mm | : 3.12 |
| Tolerance mm | : + 0.25 |
| <hr/> | |
| Rated speed rpm | : 482 |
| guide sleeve travel mm | : 3.74 |
| Tolerance mm | : + 0.25 |
| <hr/> | |
| Rated speed rpm | : 590 |

| | |
|---------------------------|----------|
| guide sleeve travel mm | : 4.17 |
| Tolerance mm | : + 0.25 |
| <hr/> | |
| Rated speed rpm | : 1159 |
| guide sleeve travel mm | : 10.00 |
| Tolerance mm | : + 0.25 |
| <hr/> | |
| Rated speed rpm | : 1250 |
| guide sleeve travel mm | : 11.50 |
| Tolerance mm | : + 0.50 |

GUIDE SLEEVE POSITION

| | |
|-------------------|----------|
| Rated speed rpm | : 1110 |
| <hr/> | |
| Rack travel in mm | : 16.50 |
| Tolerance mm | : + 1.30 |

FULL LOAD DELIVERY AT FULL LOAD STOP

| | |
|--|---------|
| Rated speed rpm | : 1050 |
| Aneroid pressure hPa | : - |
| Det. quantity cm ³ /1000 strokes | : 115.0 |
| Tolerance cm ³ /1000 strokes | : + 1.0 |
| Check tolerance cm ³ /1000S. | : + 3.5 |
| Spread Tolerance cm ³ /1000 strokes | : 8.5 |
| Check tolerance cm ³ /1000S. | : 13.0 |

RATED SPEED

| | |
|----------------------------------|----------|
| control lever position degree | : 120.0 |
| Tolerance degree | : + 4.0 |
| <hr/> | |
| rack travel mm | : 11.00 |
| Rated speed rpm | : 1095 |
| Tolerance 1/min | : + 5 |
| <hr/> | |
| rack travel mm | : 4.00 |
| Rated speed rpm | : 1145 |
| Tolerance 1/min | : + 15 |
| <hr/> | |
| rack travel mm | : 0.50 |
| Tolerance mm | : + 0.50 |
| Rated speed rpm | : 1350 |

LOW IDLE

control lever
position degree : 72.0
tolerance degree : + - 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 7.70
Tolerance mm : + - 0.10

Rated speed rpm : 250
CRT mm min. : > 9.70

Rated speed rpm : 420

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 12.00
Tolerance mm : + - 0.05

Rated speed rpm : 600
rack travel mm : 12.00
Tolerance mm : + - 0.05

START CUT-OUT

Rated speed rpm : < 270
Check
speed 1/min : < 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 119.0
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 5.5
Spread
Tolerance
cm³/1000 strokes : 11.0
Check tolerance
cm³/1000S. : 14.0

BREAKAWAY

F01

Rack travel in mm : 11.00
Rated speed rpm : 1095
Tolerance 1/min : + - 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 140.0
Tolerance
cm³/1000 strokes : + - 10.0
Check tolerance
cm³/1000S. : + - 14.0

LOW IDLE

Rated speed rpm : 350
rack travel mm : 7.70
Tolerance mm : + - 0.30
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 5.5
Spread
Tolerance
cm³/1000 strokes : 6.5
Check tolerance
cm³/1000S. : 11.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 02.11.93
Test oil : ISO 4113

Combination No. : 0 401 878 717B

Injection pump
Pump designation : PE8P110A320LS3853-1
EP type number : 0 411 818 726

Governor
Governor design. : RSV400...1000P1A554
Governor no. : 0 421 833 376

Cust. part No. : 9273967

Customer-spec. information

Customer : LIEBHERR
Motor : D 9308 T
Power KW : 255.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 3.85
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 0.50

Firing order : 1- 8- 7- 2- 6
: - 3- 5- 4

Phasing : 0-45-90-135-180
: -225-270-315

Tolerance
Check
tolerance °NW : + 0.30

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 13.45
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 167.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Speed
Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + - 0.20

FULL LOAD DELIVERY AT FULL LOAD STOP

Aneroid pressure

hPa : -

Del. quantity
cm³/1000 strokes : 167.0

Tolerance
cm³/1000 strokes : + - 1.0

Check tolerance
cm³/1000S. : + - 4.0

Spred

Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 7.5

RATED SPEED

control lever
position degree : 100.0
tolerance degree : + - 4.0

rack travel mm : 12.45
Rated speed rpm : 945
Tolerance 1/min : + - 5

rack travel mm : 4.00
Rated speed rpm : 1000
Tolerance 1/min : + - 15

rack travel mm : 0.85
Tolerance mm : + - 0.55
Rated speed rpm : 1100

rack travel mm : 4.00
Rated speed rpm : 1030

LOW IDLE

control lever
position degree : 79.0
tolerance degree : + - 4.0

Setting point w/out bumper spring

Rated speed rpm : 400
rack travel mm : 5.70

Testing:

Rated speed rpm : 400
rack travel mm : 6.00
Tolerance mm : + - 0.10

rack travel mm : 2.00
Rated speed rpm : 460
Tolerance 1/min : + - 30

TORQUE CONTROL

Rated speed rpm : 900
rack travel mm : 13.45
Tolerance mm : + - 0.05

Rated speed rpm : 500
rack travel mm : 13.50
Tolerance mm : + - 0.10

Rated speed rpm : 350
rack travel mm : 14.90
Tolerance mm : + - 0.30

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 550
Pressure hPa : 1500
rack travel mm : 13.45
Tolerance mm : + - 0.05

MEASUREMENT

Rated speed rpm : 550
Pressure hPa : 620
rack travel mm : 12.80
Tolerance mm : + - 0.10

Pressure hPa : 685
rack travel mm : 13.20
Tolerance mm : + - 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 153.0
Tolerance
cm³/1000 strokes : + - 1.0
Check tolerance
cm³/1000S. : + - 4.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 12.45
Rated speed rpm : 945
Tolerance 1/min : + - 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : + - 0.50
Del. quantity
cm³/1000 strokes : 160.0
Tolerance
cm³/1000 strokes : + - 10.0
Check tolerance
cm³/1000S. : + - 14.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 06.04.89
Test oil : ISO 4113

Combination No. : 0 402 046 751

Injection pump
Pump designation : PES6P110A820LS3131
EP type number : 0 412 016 715

Governor
Governor design. : RQ300/1100PA723-
Governor no. : 0 421 801 265

Cust. part No. :

Customer-spec. information

Customer : MB-NFZ
Motor : OM427H
Power KW : 177.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Overflow quantity
min. l/h : 110
Tolerance l/h : + 10.0

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 1.5
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 4.35
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 0.50

Firing order : 6- 2- 4- 1- 5-
: 3

Phasing : 0-60-120-180-240
: -300

Tolerance check
tolerance °NW : + 0.50

Start of delivery mark

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 11.15
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 141.0

Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 4.0
 Spred
 Tolerance
 cm³/1000 strokes : 4.0
 Check tolerance
 cm³/1000S. : 8.0
 Del. quantity
 cm³/1000 strokes : 17.0
 Tolerance
 cm³/1000 strokes : + 3.0
 Check tolerance
 cm³/1000S. : + 6.0
 Spred
 Tolerance
 cm³/1000 strokes : 4.5
 Check tolerance
 cm³/1000S. : 7.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 200
 guide sleeve
 travel mm : 0.30
 Tolerance mm : + 0.30
 Rated speed rpm : 1100
 guide sleeve
 travel mm : 5.95
 Tolerance mm : + 0.05
 Rated speed rpm : 300
 guide sleeve
 travel mm : 2.65
 Tolerance mm : + 0.05
 Rated speed rpm : 550
 guide sleeve
 travel mm : 5.95
 Tolerance mm : + 0.05

GUIDE SLEEVE POSITION

Rated speed rpm : 550
 Rack travel in mm : 15.55
 Tolerance mm : + 0.85

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
 Aneroid pressure
 hPa : -
 Del. quantity
 cm³/1000 strokes : 141.0
 Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 4.0
 Spred
 Tolerance
 cm³/1000 strokes : 4.0
 Check tolerance
 cm³/1000S. : 8.0

RATED SPEED

control lever
 position degree : 97.0
 tolerance degree : + 3.0
 rack travel mm : 10.20
 Rated speed rpm : 1145
 Tolerance 1/min : + 5
 rack travel mm : 4.00
 Rated speed rpm : 1190
 Tolerance 1/min : + 15
 rack travel mm : 0.75
 Tolerance mm : + 0.75
 Rated speed rpm : 1300

LOW IDLE

control lever
 position degree : 76.0
 tolerance degree : + 3.0

Testing:

Rated speed rpm : 300
 rack travel mm : 7.20
 Tolerance mm : + 0.10
 rack travel mm : 2.00
 Rated speed rpm : 380
 Tolerance 1/min : + 20
 Rated speed rpm : 100
 CRT mm min. : > 8.80

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 11.15
Tolerance mm : \pm 0.05

Rated speed rpm : 600
rack travel mm : 11.15
Tolerance mm : \pm 0.05

Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spread
Tolerance
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000S. : 7.0

START CUT-OUT

Rated speed rpm : < 220
Check
speed 1/min : < 240

End of test specification sheet

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 119.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0

BREAKAWAY

Rack travel in mm : 10.20
Rated speed rpm : 1145
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 140.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 17.0

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 12.04.95
Test oil : ISO 4113

Combination No. : 0 402 046 824

Injection pump
Pump designation : PES6P120A320RS3279
: -1
EP type number : 0 412 026 758

Governor
Governor design. : RQ275/1050PA999-5
Governor no. : 0 421 801 663

Cust. part No. : CCEP-5112B 66-175

Customer-spec. information

Customer : RVI
Motor : MIHR 062045 A/3
Power KW : 186.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0
x inside diameter : 3.0
x Length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 3.55
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : + 0.30
Check
tolerance °NW : + 0.50

Start of delivery mark

Barrel no. : 1

Beginning of delivery difference

and maximum rack
travel : 10.50
Tolerance mm : + 0.50

BASIC SETTING

Rated speed rpm : 700

Del. quantity
cm³/1000 strokes : 160.0

Tolerance
 cm³/1000 strokes : + 1.0

 Check tolerance
 cm³/1000S. : + 4.0

 Speed
 Tolerance
 cm³/1000 strokes : 5.0

 Check tolerance
 cm³/1000S. : 9.0

 Rated speed rpm : 275

 Rack travel in mm : -4.50
 Tolerance mm : + 0.20
 Del. quantity
 cm³/1000 strokes : 22.0
 Tolerance
 cm³/1000 strokes : + 2.0
 Check tolerance
 cm³/1000S. : + 5.0
 Speed
 Tolerance
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
 guide sleeve
 travel mm : 2.35
 Tolerance mm : + 0.10

 Rated speed rpm : 1126
 guide sleeve
 travel mm : 6.38
 Tolerance mm : + 0.10

 Rated speed rpm : 1050
 guide sleeve
 travel mm : 6.00
 Tolerance mm : + 0.10

 Rated speed rpm : 582
 guide sleeve
 travel mm : 5.14
 Tolerance mm : + 0.10

 Rated speed rpm : 710
 guide sleeve
 travel mm : 6.00
 Tolerance mm : + 0.10

Rated speed rpm : 1380
 guide sleeve
 travel mm : 11.50
 Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 750
 Rack travel in mm : 20.00
 Tolerance mm : + 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 160.0
 Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 4.0
 Speed
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

RATED SPEED

control lever
 position degree : 274.0
 tolerance degree : + 4.0

 rack travel mm : -1.00
 Rated speed rpm : 1138
 Tolerance 1/min : + 8

 rack travel mm : -7.20
 Rated speed rpm : 1245
 Tolerance 1/min : + 15

 rack travel mm : -10.75
 Tolerance mm : + 0.55
 Rated speed rpm : 1350

LOW IDLE

control lever
 position degree : 253.0
 tolerance degree : + 4.0

Testing:

Rated speed rpm : 275
 rack travel mm : -4.50
 Tolerance mm : + 0.10

rack travel mm : -9.25
 Rated speed rpm : 580
 Tolerance 1/min : + 20

Rated speed rpm : 200

CRT mm max. : < -3.00

TORQUE CONTROL

Rated speed rpm : 700

Rated speed rpm : 1050
 Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST**SETTING**

Rated speed rpm : 500
 Pressure hPa : 1000

MEASUREMENT

Pressure hPa : -
 Rated speed rpm : 500
 rack travel mm : -1.20
 Tolerance mm : + 0.20

Rated speed rpm : 500

Pressure hPa : 220
 rack travel mm : -0.45
 Tolerance mm : + 0.15

Pressure hPa : 160
 rack travel mm : -0.85
 Tolerance mm : + 0.05

START CUT-OUT

Rated speed rpm : < 195
 Check speed 1/min : < 215

FUEL DELIVERY CHARACTERISTICS**Aneroid pressure**

hPa : 1000
 Rated speed rpm : 1050
 Del. quantity cm³/1000 strokes : 156.0
 Tolerance cm³/1000 strokes : + 3.0
 Check tolerance cm³/1000S. : + 6.0

Aneroid pressure

hPa : -
 Rated speed rpm : 500
 Del. quantity cm³/1000 strokes : 114.0
 Tolerance cm³/1000 strokes : + 1.0
 Check tolerance cm³/1000S. : + 4.0

BREAKAWAY

Rack travel in mm : -1.00
 Rated speed rpm : 1138
 Tolerance 1/min : + 8

STARTING FUEL DELIVERY

Del. quantity cm³/1000 strokes : 155.0
 Tolerance cm³/1000 strokes : + 10.0
 Check tolerance cm³/1000S. : + 14.0

LOW IDLE

Rated speed rpm : 275
 rack travel mm : -4.50
 Tolerance mm : + 0.20
 Del. quantity cm³/1000 strokes : 22.0
 Tolerance cm³/1000 strokes : + 2.0
 Check tolerance cm³/1000S. : + 5.0
 Spread
 Tolerance cm³/1000 strokes : 8.0
 Check tolerance cm³/1000S. : 12.0

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 05.05.95
Test oil : ISO 4113

Combination No. : 0 402 046 827

Injection pump
Pump designation : PES6P120A320RS3284
EP type number : 0 412 026 749

Governor
Governor design. : RQ275/1050PA999-3
Governor no. : 0 421 801 598

Cust. part No. : CCEP5119A

Customer-spec. information

Customer : RVI
Motor : MIDR/PR 062045
Power KW : 186.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 071

Inlet press. bar : 2.5

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 3.55
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : + 0.30
Check
tolerance °NW : + 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

Del. quantity
cm³/1000 strokes : 155.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000s. : + 4.0

Spread
Tolerance
cm³/1000 strokes : 5.0

Check tolerance cm³/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : -5.40

Tolerance mm : + 0.20

Del. quantity cm³/1000 strokes : 21.0

Tolerance cm³/1000 strokes : + 2.0

Check tolerance cm³/1000S. : + 5.0

Speed Tolerance cm³/1000 strokes : 8.0

Check tolerance cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 600

Rack travel in mm : 20.00

Tolerance mm : + 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700

Aneroid pressure

hPa : 1000

Del. quantity cm³/1000 strokes : 155.0

Tolerance cm³/1000 strokes : + 1.0

Check tolerance cm³/1000S. : + 4.0

Speed Tolerance cm³/1000 strokes : 5.0

Check tolerance cm³/1000S. : 9.0

RATED SPEED

rack travel mm : -1.00

Rated speed rpm : 1118

Tolerance 1/min : + 8

rack travel mm : -6.30

Rated speed rpm : 1205

Tolerance 1/min : + 15

rack travel mm : -9.85

Tolerance mm : + 0.55

Rated speed rpm : 1350

LOW IDLE

control lever position degree : 252.0

tolerance degree : + 4.0

Testing:

Rated speed rpm : 275

rack travel mm : -5.40

Tolerance mm : + 0.10

rack travel mm : -8.10

Rated speed rpm : 340

Tolerance 1/min : + 20

Rated speed rpm : 200

CRT mm max. : < -4.00

TORQUE CONTROL

Rated speed rpm : 1050

Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500

Pressure hPa : 1000

MEASUREMENT

Pressure hPa : -

Rated speed rpm : 500

rack travel mm : -2.20

Tolerance mm : + 0.10

Rated speed rpm : 500

Pressure hPa : 360

rack travel mm : -0.40

Tolerance mm : + 0.20

Pressure hPa : 200

rack travel mm : -1.45

Tolerance mm : + 0.05

START CUT-OUT

Rated speed rpm : < 195
Check speed 1/min : < 215

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 149.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 81.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0

BREAKAWAY

Rack travel in mm : -1.00
Rated speed rpm : 1118
Tolerance 1/min : ± 8

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 170.0
Tolerance
cm³/1000 strokes : ± 15.0
Check tolerance
cm³/1000S. : ± 19.0

LOW IDLE

Rated speed rpm : 275
rack travel mm : -5.40
Tolerance mm : ± 0.20

Del. quantity
cm³/1000 strokes : 21.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 5.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 05.05.95
Test oil : ISO 4113

Combination No. : 0 402 046 829

Injection pump
Pump designation : PES6P120A320RS3284
EP type number : 0 412 026 749

Governor
Governor design. : RQV275...1050PA995
: -1
Governor no. : 0 421 813 941

Cust. part No. : CCEP 5120A 66-177

Customer-spec. information

Customer : RVI
Motor : MIDR06.20.45 B/3
Power KW : 195.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 071

Inlet press. bar : 2.5

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 3.55
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance
Check
tolerance *NW : + 0.30

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

Del. quantity
cm3/1000 strokes : 157.0

Tolerance
cm3/1000 strokes : + 1.0

Check tolerance
cm3/1000S. : + 4.0

Spread
Tolerance
cm3/1000 strokes : 5.0

Check tolerance cm³/1000S. : 9.0
 Rated speed rpm : 275
 Rack travel in mm : -5.20
 Tolerance mm : + - 0.20
 Del. quantity cm³/1000 strokes : 25.0
 Tolerance cm³/1000 strokes : + - 2.0
 Check tolerance cm³/1000S. : + - 5.0
 Spread
 Tolerance cm³/1000 strokes : 8.0
 Check tolerance cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 1220
 Rack travel in mm : 10.50
 Tolerance mm : + - 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
 Aneroid pressure hPa : 1000
 Del. quantity cm³/1000 strokes : 157.0
 Tolerance cm³/1000 strokes : + - 1.0
 Check tolerance cm³/1000S. : + - 4.0
 Spread
 Tolerance cm³/1000 strokes : 5.0
 Check tolerance cm³/1000S. : 9.0

RATED SPEED

control lever position degree : 300.0
 tolerance degree : + - 4.0
 rack travel mm : -1.00

Rated speed rpm : 1125
 Tolerance 1/min : + - 5
 rack travel mm : -6.70
 Rated speed rpm : 1220
 Tolerance 1/min : + - 15
 rack travel mm : -10.20
 Tolerance mm : + - 0.55
 Rated speed rpm : 1350

LOW IDLE

control lever position degree : 247.0
 tolerance degree : + - 4.0

Testing:

Rated speed rpm : 275
 rack travel mm : -5.20
 Tolerance mm : + - 0.10
 Rated speed rpm : 200
 CRT mm max. : < -3.60
 Rated speed rpm : 390

TORQUE CONTROL

Rated speed rpm : 1050
 Tolerance mm : + - 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
 Pressure hPa : 1000

MEASUREMENT

Pressure hPa : -
 Rated speed rpm : 500
 rack travel mm : -1.35
 Tolerance mm : + - 0.15

Rated speed rpm : 500

Pressure hPa : 130
 rack travel mm : -1.00
 Tolerance mm : + - 0.10

Pressure hPa : 240
rack travel mm : -0.35
Tolerance mm : + - 0.05

START CUT-OUT

Rated speed rpm : < 210
Check speed 1/min : < 230

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 153.0
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 108.0
Tolerance
cm³/1000 strokes : + - 1.0
Check tolerance
cm³/1000S. : + - 4.0

BREAKAWAY

Rack travel in mm : -1.00
Rated speed rpm : 1125
Tolerance 1/min : + - 5

STARTING FUEL DELIVERY

Del. quantity
cm³/1000 strokes : 175.0
Tolerance
cm³/1000 strokes : + - 15.0
Check tolerance
cm³/1000S. : + - 19.0

LOW IDLE

Rated speed rpm : 275
rack travel mm : -5.20

Tolerance mm : + - 0.20
Del. quantity
cm³/1000 strokes : 25.0
Tolerance
cm³/1000 strokes : + - 2.0
Check tolerance
cm³/1000S. : + - 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 12.05.95
Test oil : ISO 4113

Combination No. : 0 402 046 836

Injection pump
Pump designation : PES6P120A320RS3303
EP type number : 0 412 026 755

Governor
Governor design. : RQV275...1050PA1038K
Governor no. : 0 421 815 313

Cust. part No. : CCEP-5129B 66-195

Customer-spec. information

Customer : RVI
Motor : MIDR 062045 J/3
Power KW : 169.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 071

Inlet press. bar : 2.5
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 3.55
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance
Check
tolerance °NW : + 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1050

Del. quantity
cm³/1000 strokes : 157.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread
Tolerance
cm³/1000 strokes : 5.0

Check tolerance cm³/1000S. : 9.0
 Del. quantity cm³/1000 strokes : 24.0
 Tolerance cm³/1000 strokes : + - 2.0
 Check tolerance cm³/1000S. : + - 5.0
 Speed
 Tolerance cm³/1000 strokes : 8.0
 Check tolerance cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 275
 guide sleeve travel mm : 1.34
 Tolerance mm : + - 0.25

Rated speed rpm : 1140
 guide sleeve travel mm : 9.03
 Tolerance mm : + - 0.25

Rated speed rpm : 740
 guide sleeve travel mm : 6.16
 Tolerance mm : + - 0.25

Rated speed rpm : 336
 guide sleeve travel mm : 2.38
 Tolerance mm : + - 0.25

Rated speed rpm : 386
 guide sleeve travel mm : 3.12
 Tolerance mm : + - 0.25

Rated speed rpm : 440
 guide sleeve travel mm : 3.94
 Tolerance mm : + - 0.25

Rated speed rpm : 1530
 guide sleeve travel mm : 13.50
 Tolerance mm : + - 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1330
 Rack travel in mm : 9.90
 Tolerance mm : + - 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
 Aneroid pressure hPa : -
 Del. quantity cm³/1000 strokes : 157.0
 Tolerance cm³/1000 strokes : + - 1.0
 Check tolerance cm³/1000S. : + - 4.0
 Speed
 Tolerance cm³/1000 strokes : 5.0
 Check tolerance cm³/1000S. : 9.0

RATED SPEED

control lever position degree : 56.0
 tolerance degree : + - 4.0

control lever position degree : 287.0
 tolerance degree : + - 4.0

rack travel mm : -1.00
 Rated speed rpm : 1110
 Tolerance 1/min : + - 5

rack travel mm : -7.00
 Rated speed rpm : 1240
 Tolerance 1/min : + - 15

rack travel mm : -10.55
 Tolerance mm : + - 0.55
 Rated speed rpm : 1350

LOW IDLE

control lever position degree : 242.0
 tolerance degree : + - 4.0

control lever position degree : 12.0
 tolerance degree : + - 4.0

Testing:

Rated speed rpm : 275
rack travel mm : -5.50
Tolerance mm : \pm 0.20

Rated speed rpm : 200

CRT mm max. : < -4.70

Rated speed rpm : 330

TORQUE CONTROL

Rated speed rpm : 1050

Rated speed rpm : 700
rack travel mm : -0.80
Tolerance mm : \pm 0.10

START CUT-OUT

Rated speed rpm : < 235
Check speed 1/min : < 255

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : -
Rated speed rpm : 700
Del. quantity cm³/1000 strokes : 137.0
Tolerance cm³/1000 strokes : \pm 3.0
Check tolerance cm³/1000S. : \pm 6.0

BREAKAWAY

Rack travel in mm : -1.00
Rated speed rpm : 1110
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity cm³/1000 strokes : 170.0
Tolerance cm³/1000 strokes : \pm 15.0

Check tolerance cm³/1000S. : \pm 19.0

LOW IDLE

Del. quantity cm³/1000 strokes : 24.0
Tolerance cm³/1000 strokes : \pm 2.0
Check tolerance cm³/1000S. : \pm 5.0
Spread Tolerance cm³/1000 strokes : 8.0
Check tolerance cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.01.95
Test oil : ISO 4113

Combination No. : 0 402 046 855

Injection pump
Pump designation : PE6P110A320RS3329
EP type number : 0 412 016 743

Governor
Governor design. : RQV325...1300PA1119
Governor no. : 0 421 814 083

Cust. part No. : 1284418/4

Customer-spec. information

Customer : DAF
Motor : NS156M
Power KW : 156.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x Length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 4.85
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 20.50
Tolerance mm : + 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : + 0.30
Check
tolerance °NW : + 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 11.85
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 144.0

Tolerance
cm³/1000 strokes : + 1.0

| | |
|--|----------|
| Check tolerance cm ³ /1000S. | : + 4.0 |
| Spread Tolerance cm ³ /1000 strokes | : 4.0 |
| Check tolerance cm ³ /1000S. | : 7.5 |
| Rated speed rpm | : 325 |
| Rack travel in mm | : 5.20 |
| Tolerance mm | : + 0.10 |
| Del. quantity cm ³ /1000 strokes | : 26.0 |
| Tolerance cm ³ /1000 strokes | : + 2.5 |
| Check tolerance cm ³ /1000S. | : + 5.0 |
| Spread Tolerance cm ³ /1000 strokes | : 12.0 |
| Check tolerance cm ³ /1000S. | : 15.0 |

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

| | |
|---------------------------|----------|
| Rated speed rpm | : 325 |
| guide sleeve travel mm | : 1.33 |
| Tolerance mm | : + 0.15 |
| Rated speed rpm | : 1353 |
| guide sleeve travel mm | : 8.29 |
| Tolerance mm | : + 0.20 |
| Rated speed rpm | : 900 |
| guide sleeve travel mm | : 4.92 |
| Tolerance mm | : + 0.25 |
| Rated speed rpm | : 405 |
| guide sleeve travel mm | : 2.07 |
| Tolerance mm | : + 0.25 |
| Rated speed rpm | : 455 |
| guide sleeve travel mm | : 2.52 |
| Tolerance mm | : + 0.25 |
| Rated speed rpm | : 530 |

| | |
|---------------------------|----------|
| guide sleeve travel mm | : 2.93 |
| Tolerance mm | : + 0.25 |
| Rated speed rpm | : 1640 |
| guide sleeve travel mm | : 11.50 |
| Tolerance mm | : + 0.50 |

GUIDE SLEEVE POSITION

| | |
|-------------------|----------|
| Rated speed rpm | : 1450 |
| Rack travel in mm | : 10.80 |
| Tolerance mm | : + 1.30 |

FULL LOAD DELIVERY AT FULL LOAD STOP

| | |
|--|---------|
| Rated speed rpm | : 1000 |
| Aneroid pressure hPa | : 1000 |
| Del. quantity cm ³ /1000 strokes | : 144.0 |
| Tolerance cm ³ /1000 strokes | : + 1.0 |
| Check tolerance cm ³ /1000S. | : + 4.0 |
| Spread Tolerance cm ³ /1000 strokes | : 4.0 |
| Check tolerance cm ³ /1000S. | : 7.5 |

RATED SPEED

| | |
|----------------------------------|----------|
| control lever position degree | : 122.0 |
| tolerance degree | : + 4.0 |
| rack travel mm | : 10.85 |
| Rated speed rpm | : 1342 |
| Tolerance 1/min | : + 5 |
| rack travel mm | : 4.00 |
| Rated speed rpm | : 1460 |
| Tolerance 1/min | : + 15 |
| rack travel mm | : 0.50 |
| Tolerance mm | : + 0.50 |
| Rated speed rpm | : 1600 |

LOW IDLE

control lever
position degree : 83.0
tolerance degree : + - 4.0

Testing:

Rated speed rpm : 325
rack travel mm : 4.50
Tolerance mm : + - 0.10

Rated speed rpm : 225

CRT mm min. : > 6.00

Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 11.85
Tolerance mm : + - 0.05

Rated speed rpm : 700
rack travel mm : 11.85
Tolerance mm : + - 0.05

Rated speed rpm : 1300
rack travel mm : 11.85
Tolerance mm : + - 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 600
Pressure hPa : 1000
rack travel mm : 11.85
Tolerance mm : + - 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 600
rack travel mm : 7.35
Tolerance mm : + - 0.20

Rated speed rpm : 600

Pressure hPa : 370
rack travel mm : 10.75
Tolerance mm : + - 0.05

Pressure hPa : 200
rack travel mm : 8.40
Tolerance mm : + - 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : + - 2.0
Check tolerance
cm³/1000S. : + - 5.0

Aneroid pressure
hPa : -
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 98.5
Tolerance
cm³/1000 strokes : + - 1.0
Check tolerance
cm³/1000S. : + - 3.5

BREAKAWAY

Rack travel in mm : 10.85
Rated speed rpm : 1342
Tolerance 1/min : + - 5

LOW IDLE

Rated speed rpm : 325
rack travel mm : 5.20
Tolerance mm : + - 0.10
Del. quantity
cm³/1000 strokes : 26.0
Tolerance
cm³/1000 strokes : + - 2.5
Check tolerance
cm³/1000S. : + - 5.0
Spread
Tolerance
cm³/1000 strokes : 12.0
Check tolerance
cm³/1000S. : 15.0

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.01.95
Test oil : ISO 4113

Combination No. : 0 402 046 856

Injection pump
Pump designation : PE6P110A320RS3329Z
EP type number : 0 412 016 744

Governor
Governor design. : RQV325...1300PA1119
Governor no. : 0 421 814 083

Cust. part No. : 1284417/5

Customer-spec. information

Customer : DAF
Motor : NS133M
Power KW : 133.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 4.85
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 20.50
Tolerance mm : + 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : + 0.30
Check
tolerance °NW : + 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 11.85
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 146.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance cm³/1000S. : + 4.0
 Spred Tolerance cm³/1000 strokes : 4.0
 Check tolerance cm³/1000S. : 7.5
 Rated speed rpm : 325
 Rack travel in mm : 5.20
 Tolerance mm : + 0.10
 Del. quantity cm³/1000 strokes : 26.0
 Tolerance cm³/1000 strokes : + 2.5
 Check tolerance cm³/1000S. : + 5.0
 Spred Tolerance cm³/1000 strokes : 12.0
 Check tolerance cm³/1000S. : 15.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 325
 guide sleeve travel mm : 1.33
 Tolerance mm : + 0.15
 Rated speed rpm : 1353
 guide sleeve travel mm : 8.29
 Tolerance mm : + 0.20
 Rated speed rpm : 900
 guide sleeve travel mm : 4.92
 Tolerance mm : + 0.25
 Rated speed rpm : 405
 guide sleeve travel mm : 2.07
 Tolerance mm : + 0.25
 Rated speed rpm : 455
 guide sleeve travel mm : 2.52
 Tolerance mm : + 0.25
 Rated speed rpm : 530

guide sleeve travel mm : 2.93
 Tolerance mm : + 0.25
 Rated speed rpm : 1640
 guide sleeve travel mm : 11.50
 Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1450
 Rack travel in mm : 10.80
 Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
 Aneroid pressure hPa : 1000
 Del. quantity cm³/1000 strokes : 146.0
 Tolerance cm³/1000 strokes : + 1.0
 Check tolerance cm³/1000S. : + 4.0
 Spred Tolerance cm³/1000 strokes : 4.0
 Check tolerance cm³/1000S. : 7.5

RATED SPEED

control lever position degree : 122.0
 tolerance degree : + 4.0
 rack travel mm : 10.85
 Rated speed rpm : 1342
 Tolerance 1/min : + 5
 rack travel mm : 4.00
 Rated speed rpm : 1460
 Tolerance 1/min : + 15
 rack travel mm : 0.50
 Tolerance mm : + 0.50
 Rated speed rpm : 1600

LOW IDLE

control lever
position degree : 83.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 325
rack travel mm : 4.50
Tolerance mm : \pm 0.10

Rated speed rpm : 225
CRT mm min. : > 6.00

Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 11.85
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : 11.85
Tolerance mm : \pm 0.05

Rated speed rpm : 1300
rack travel mm : 11.85
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 600
Pressure hPa : 1000
rack travel mm : 11.85
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 600
rack travel mm : 6.60
Tolerance mm : \pm 0.20

Rated speed rpm : 600

Pressure hPa : 310
rack travel mm : 10.55
Tolerance mm : \pm 0.05

Pressure hPa : 130
rack travel mm : 7.85
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0

Aneroid pressure
hPa : -
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 88.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.5

BREAKAWAY

Rack travel in mm : 10.85
Rated speed rpm : 1342
Tolerance 1/min : \pm 5

LOW IDLE

Rated speed rpm : 325
rack travel mm : 5.20
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 26.0
Tolerance
cm³/1000 strokes : \pm 2.5
Check tolerance
cm³/1000S. : \pm 5.0
Spread
Tolerance
cm³/1000 strokes : 12.0
Check tolerance
cm³/1000S. : 15.0

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.01.95
Test oil : ISO 4113

Combination No. : 0 402 046 861

Injection pump
Pump designation : PE6P110A320RS3329
EP type number : 0 412 016 743

Governor
Governor design. : RQ325/1300PA1150
Governor no. : 0 421 801 716

Cust. part No. : 1284420/4

Customer-spec. information

Customer : DAF
Motor : NS156M
Power KW : 156.0

TEST BENCH REQUIREMENTS

Inlet Line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 4.85
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 20.50
Tolerance mm : + 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance check
tolerance °NW : + 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 11.85
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 144.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000s. : + 4.0

Spred
 Tolerance
 cm³/1000 strokes : 4.0

Check tolerance
 cm³/1000S. : 7.5

Rated speed rpm : 325

Rack travel in mm : 5.20
 Tolerance mm : + 0.10

Del. quantity
 cm³/1000 strokes : 26.0

Tolerance
 cm³/1000 strokes : + 2.5

Check tolerance
 cm³/1000S. : + 5.0

Spred
 Tolerance
 cm³/1000 strokes : 12.0

Check tolerance
 cm³/1000S. : 15.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 325
 guide sleeve
 travel mm : 1.99
 Tolerance mm : + 0.10

Rated speed rpm : 1351
 guide sleeve
 travel mm : 6.37
 Tolerance mm : + 0.10

Rated speed rpm : 1300
 guide sleeve
 travel mm : 6.00
 Tolerance mm : + 0.10

Rated speed rpm : 427
 guide sleeve
 travel mm : 3.54
 Tolerance mm : + 0.10

Rated speed rpm : 590
 guide sleeve
 travel mm : 6.00
 Tolerance mm : + 0.10

Rated speed rpm : 1570
 guide sleeve
 travel mm : 11.50
 Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 650
 Rack travel in mm : 20.00
 Tolerance mm : + 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 144.0
 Tolerance
 cm³/1000 strokes : + 1.0

Check tolerance
 cm³/1000S. : + 4.0

Spred
 Tolerance
 cm³/1000 strokes : 4.0

Check tolerance
 cm³/1000S. : 7.5

RATED SPEED

control lever
 position degree : 93.0
 tolerance degree : + 4.0

rack travel mm : 10.85
 Rated speed rpm : 1345
 Tolerance 1/min : + 5

rack travel mm : 4.00
 Rated speed rpm : 1450
 Tolerance 1/min : + 15

rack travel mm : 0.50
 Tolerance mm : + 0.50
 Rated speed rpm : 1600

LOW IDLE

control lever
 position degree : 72.0
 tolerance degree : + 4.0

Testing:

Rated speed rpm : 325
 rack travel mm : 4.50
 Tolerance mm : + 0.10

rack travel mm : 2.00
 Rated speed rpm : 415
 Rated speed rpm : 225
 CRT mm min. : > 5.90

TORQUE CONTROL

Rated speed rpm : 1000
 rack travel mm : 11.85
 Tolerance mm : + - 0.05
 Rated speed rpm : 700
 rack travel mm : 11.85
 Tolerance mm : + - 0.05
 Rated speed rpm : 1300
 rack travel mm : 11.85
 Tolerance mm : + - 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 600
 Pressure hPa : 1000
 rack travel mm : 11.85
 Tolerance mm : + - 0.05

MEASUREMENT

Pressure hPa : -
 Rated speed rpm : 600
 rack travel mm : 7.35
 Tolerance mm : + - 0.20
 Rated speed rpm : 600
 Pressure hPa : 370
 rack travel mm : 10.75
 Tolerance mm : + - 0.05
 Pressure hPa : 200
 rack travel mm : 8.40
 Tolerance mm : + - 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
 hPa : 1000
 Rated speed rpm : 700

Del. quantity
 cm³/1000 strokes : 145.0
 Tolerance
 cm³/1000 strokes : + - 2.0
 Check tolerance
 cm³/1000S. : + - 5.0

Aneroid pressure

hPa : -
 Rated speed rpm : 600
 Del. quantity
 cm³/1000 strokes : 98.5
 Tolerance
 cm³/1000 strokes : + - 1.0
 Check tolerance
 cm³/1000S. : + - 3.5

BREAKAWAY

Rack travel in mm : 10.85
 Rated speed rpm : 1345
 Tolerance 1/min : + - 5

LOW IDLE

Rated speed rpm : 325
 rack travel mm : 5.20
 Tolerance mm : + - 0.10
 Del. quantity
 cm³/1000 strokes : 26.0
 Tolerance
 cm³/1000 strokes : + - 2.5
 Check tolerance
 cm³/1000S. : + - 5.0
 Spread
 Tolerance
 cm³/1000 strokes : 12.0
 Check tolerance
 cm³/1000S. : 15.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 26.06.95
Test oil : ISO 4113

Combination No. : 0 402 046 870

Injection pump
Pump designation : PES6P120A320RS3303
: -1
EP type number : 0 412 026 782

Governor
Governor design. : RQV275...1050PA1038
: -1K
Governor no. : 0 421 815 478

Cust. part No. : CCEP-5129C 66-195

Customer-spec. information

Customer : RVI
Motor : MIDR 062045 J/3
Power KW : 169.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 071

Inlet press. bar : 2.5
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 3.60
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.30

Check
tolerance °NW : + 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1050

Del. quantity
cm³/1000 strokes : 159.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread

Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0
 Del. quantity
 cm³/1000 strokes : 27.0
 Tolerance
 cm³/1000 strokes : + - 2.0
 Check tolerance
 cm³/1000S. : + - 5.0
 Spread
 Tolerance
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 275
 guide sleeve
 travel mm : 1.29
 Tolerance mm : + - 0.20
 Rated speed rpm : 1143
 guide sleeve
 travel mm : 9.05
 Tolerance mm : + - 0.15
 Rated speed rpm : 742
 guide sleeve
 travel mm : 6.16
 Tolerance mm : + - 0.25
 Rated speed rpm : 337
 guide sleeve
 travel mm : 2.38
 Tolerance mm : + - 0.25
 Rated speed rpm : 387
 guide sleeve
 travel mm : 3.12
 Tolerance mm : + - 0.25
 Rated speed rpm : 440
 guide sleeve
 travel mm : 3.94
 Tolerance mm : + - 0.25
 Rated speed rpm : 1530
 guide sleeve
 travel mm : 13.50
 Tolerance mm : + - 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1250
 Rack travel in mm : 10.00
 Tolerance mm : + - 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
 Aneroid pressure
 hPa : -
 Del. quantity
 cm³/1000 strokes : 159.0
 Tolerance
 cm³/1000 strokes : + - 1.0
 Check tolerance
 cm³/1000S. : + - 4.0
 Spread
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

RATED SPEED

control lever
 position degree : 295.0
 tolerance degree : + - 4.0
 rack travel mm : -1.00
 Rated speed rpm : 1110
 Tolerance 1/min : + - 8
 rack travel mm : -7.00
 Rated speed rpm : 1230
 Tolerance 1/min : + - 15
 rack travel mm : -10.50
 Tolerance mm : + - 0.50
 Rated speed rpm : 1350

LOW IDLE

control lever
 position degree : 250.0
 tolerance degree : + - 4.0

Testing:

Rated speed rpm : 275
 rack travel mm : -5.70
 Tolerance mm : + - 0.20

Rated speed rpm : 200
CRT mm max. : < -4.30
Rated speed rpm : 330

TORQUE CONTROL

Rated speed rpm : 1050
Rated speed rpm : 700
rack travel mm : -1.05
Tolerance mm : + - 0.10

START CUT-OUT

Rated speed rpm : < 225
Check speed 1/min : < 245

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 700
Del. quantity
cm3/1000 strokes : 151.0
Tolerance
cm3/1000 strokes : + - 3.0
Check tolerance
cm3/1000S. : + - 6.0

BREAKAWAY

Rack travel in mm : -1.00
Rated speed rpm : 1110
Tolerance 1/min : + - 8

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm3/1000 strokes : 207.0
Tolerance
cm3/1000 strokes : + - 15.0
Check tolerance
cm3/1000S. : + - 19.0

LOW IDLE

Del. quantity
cm3/1000 strokes : 27.0
Tolerance
cm3/1000 strokes : + - 2.0
Check tolerance
cm3/1000S. : + - 5.0
Spread
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.07.95
Test oil : ISO 4113

Combination No. : 0 402 076 748

Injection pump
Pump designation : PES6P110A720RS3305
: -1
EP type number : 0 412 016 742

Governor
Governor design. : RSV300...1100P1A555
Governor no. : 0 421 833 379

Cust. part No. : 9271058

Customer-spec. information
Customer : LIEBHERR
Motor : D 926 TI
Power KW : 210.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 049

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Overflow quantity
min. l/h : 130
Tolerance l/h : + 10.0

Test nozzle hotde
assembly : 1 688 901 101

Opening pressure
bar : 207.5
Tolerance bar : + 1.5

Test lines : 1 680 750 008
Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 3.20
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.30
Check
tolerance °NW : + 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 11.25
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 165.0

Tolerance cm³/1000 strokes : + 1.0
 Check tolerance cm³/1000S. : + 3.5
 Spread
 Tolerance cm³/1000 strokes : 4.0
 Check tolerance cm³/1000S. : 7.5
 Rated speed rpm : 400
 Rack travel in mm : 4.40
 Tolerance mm : + 0.10
 Del. quantity cm³/1000 strokes : 36.0
 Tolerance cm³/1000 strokes : + 3.0
 Check tolerance cm³/1000S. : + 5.5
 Spread
 Tolerance cm³/1000 strokes : 4.5
 Check tolerance cm³/1000S. : 7.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800
 Rack travel in mm : 0.50
 Tolerance mm : + 0.20

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
 Aneroid pressure hPa : 1100
 Del. quantity cm³/1000 strokes : 165.0
 Tolerance cm³/1000 strokes : + 1.0
 Check tolerance cm³/1000S. : + 3.5
 Spread
 Tolerance cm³/1000 strokes : 4.0
 Check tolerance cm³/1000S. : 7.5

RATED SPEED

| | | |
|-------------------------------|---|--------|
| control lever position degree | : | 108.0 |
| Tolerance degree | : | + 4.0 |
| rack travel mm | : | 10.25 |
| Rated speed rpm | : | 1040 |
| Tolerance 1/min | : | + 5 |
| rack travel mm | : | 4.00 |
| Rated speed rpm | : | 1095 |
| Tolerance 1/min | : | + 15 |
| rack travel mm | : | 0.85 |
| Tolerance mm | : | + 0.55 |
| Rated speed rpm | : | 1260 |
| rack travel mm | : | 4.00 |
| Rated speed rpm | : | 1100 |

LOW IDLE

| | | |
|-----------------------------------|---|-------|
| control lever position degree | : | 78.0 |
| Tolerance degree | : | + 4.0 |
| Setting point w/out bumper spring | : | |

Rated speed rpm : 400
 rack travel mm : 3.90

Testing:

| | | |
|-----------------|---|--------|
| Rated speed rpm | : | 400 |
| rack travel mm | : | 4.40 |
| Tolerance mm | : | + 0.10 |
| rack travel mm | : | 2.00 |
| Rated speed rpm | : | 450 |
| Tolerance 1/min | : | + 30 |

TORQUE CONTROL

| | | |
|-----------------|---|--------|
| Rated speed rpm | : | 1000 |
| rack travel mm | : | 11.25 |
| Tolerance mm | : | + 0.05 |
| Rated speed rpm | : | 600 |
| rack travel mm | : | 11.25 |
| Tolerance mm | : | + 0.10 |
| Rated speed rpm | : | 500 |
| rack travel mm | : | 11.25 |

Tolerance mm : + 0.10

Rated speed rpm : 450
rack travel mm : 12.20
Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 550
Pressure hPa : 1100
rack travel mm : 11.25
Tolerance mm : + 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 550
rack travel mm : 9.75
Tolerance mm : + 0.10

Rated speed rpm : 550

Pressure hPa : 650
rack travel mm : 11.00
Tolerance mm : + 0.05

Pressure hPa : 550
rack travel mm : 10.25
Tolerance mm : + 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1100
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 186.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 5.0

Aneroid pressure
hPa : -
Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 152.5
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 3.5

BREAKAWAY

Rack travel in mm : 10.25
Rated speed rpm : 1040
Tolerance 1/min : + 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : + 0.50
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : + 10.0
Check tolerance
cm³/1000S. : + 14.0

LOW IDLE

Rated speed rpm : 400
rack travel mm : 4.40
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 36.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 5.5
Spread
Tolerance
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000S. : 7.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.07.95
Test oil : ISO 4113

Combination No. : 0 402 076 748A

Injection pump
Pump designation : PES6P110A720RS3305
EP type number : -1
: 0 412 016 742

Governor
Governor design. : RSV300...1100P1A555
Governor no. : 0 421 833 379

Cust. part No. : 9271058

Customer-spec. information

Customer : LIEBHERR
Motor : D 926 TI
Power KW : 210.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 049

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Overflow quantity
min. l/h : 130
Tolerance l/h : + 10.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 207.0
Tolerance bar : + 1.5

Test lines : 1 680 750 008
Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 3.20
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : + 0.30

Check tolerance °NW : + 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 11.25
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 165.0

Tolerance cm³/1000 strokes : + 1.0
 Check tolerance cm³/1000S. : + 3.5
 Spread
 Tolerance cm³/1000 strokes : 4.0
 Check tolerance cm³/1000S. : 7.5
 Rated speed rpm : 400
 Rack travel in mm : 4.40
 Tolerance mm : + 0.10
 Del. quantity cm³/1000 strokes : 36.0
 Tolerance cm³/1000 strokes : + 3.0
 Check tolerance cm³/1000S. : + 5.5
 Spread
 Tolerance cm³/1000 strokes : 4.5
 Check tolerance cm³/1000S. : 7.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800
 Rack travel in mm : 0.50
 Tolerance mm : + 0.20

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
 Aneroid pressure hPa : 1100
 Del. quantity cm³/1000 strokes : 165.0
 Tolerance cm³/1000 strokes : + 1.0
 Check tolerance cm³/1000S. : + 3.5
 Spread
 Tolerance cm³/1000 strokes : 4.0
 Check tolerance cm³/1000S. : 7.5

RATED SPEED

control lever position degree : 108.0
 tolerance degree : + 4.0
 rack travel mm : 10.25
 Rated speed rpm : 1025
 Tolerance 1/min : + 5
 rack travel mm : 4.00
 Rated speed rpm : 1095
 Tolerance 1/min : + 15
 rack travel mm : 0.85
 Tolerance mm : + 0.55
 Rated speed rpm : 1260
 rack travel mm : 4.00
 Rated speed rpm : 1100

LOW IDLE

control lever position degree : 78.0
 tolerance degree : + 4.0
 Setting point w/out bumper spring

Rated speed rpm : 400
 rack travel mm : 3.90

Testing:

Rated speed rpm : 400
 rack travel mm : 4.40
 Tolerance mm : + 0.10
 rack travel mm : 2.00
 Rated speed rpm : 450
 Tolerance 1/min : + 30

TORQUE CONTROL

Rated speed rpm : 1000
 rack travel mm : 11.25
 Tolerance mm : + 0.05
 Rated speed rpm : 600
 rack travel mm : 11.25
 Tolerance mm : + 0.10
 Rated speed rpm : 500
 rack travel mm : 11.25

Tolerance mm : + 0.10

Rated speed rpm : 450
rack travel mm : 12.20
Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 550
Pressure hPa : 1100
rack travel mm : 11.25
Tolerance mm : + 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 550
rack travel mm : 9.75
Tolerance mm : + 0.10

Rated speed rpm : 550

Pressure hPa : 650
rack travel mm : 11.00
Tolerance mm : + 0.05

Pressure hPa : 550
rack travel mm : 10.25
Tolerance mm : + 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : 1100
Rated speed rpm : 600
Del. quantity cm³/1000 strokes : 186.0
Tolerance cm³/1000 strokes : + 2.0
Check tolerance cm³/1000S. : + 5.0

Aneroid pressure hPa : -
Rated speed rpm : 550
Del. quantity cm³/1000 strokes : 152.5
Tolerance cm³/1000 strokes : + 1.0
Check tolerance cm³/1000S. : + 3.5

BREAKAWAY

Rack travel in mm : 10.25
Rated speed rpm : 1025
Tolerance 1/min : + 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : + 0.50
Del. quantity cm³/1000 strokes : 145.0
Tolerance cm³/1000 strokes : + 10.0
Check tolerance cm³/1000S. : + 14.0

LOW IDLE

Rated speed rpm : 400
rack travel mm : 4.40
Tolerance mm : + 0.10
Del. quantity cm³/1000 strokes : 36.0
Tolerance cm³/1000 strokes : + 3.0
Check tolerance cm³/1000S. : + 5.5
Spread
Tolerance cm³/1000 strokes : 4.5
Check tolerance cm³/1000S. : 7.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.07.95
Test oil : ISO 4113

Combination No. : 0 402 076 7488

Injection pump
Pump designation : PES6P110A720RS3305
EP type number : -1
: 0 412 016 742

Governor
Governor design. : RSV300...1100P1A555
Governor no. : 0 421 833 379

Cust. part No. : 9273570

Customer-spec. information
Customer : LIEBHERR
Motor : D 926 TI
Power KW : 200.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 3.20
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : + 0.30
Check
tolerance °NW : + 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 11.35
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 179.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance cm³/1000S. : + 3.5
 Spred Tolerance cm³/1000 strokes : 4.0
 Check tolerance cm³/1000S. : 7.5
 Rated speed rpm : 400
 Rack travel in mm : 4.40
 Tolerance mm : + 0.30
 Del. quantity cm³/1000 strokes : 13.0
 Tolerance cm³/1000 strokes : + 3.0
 Check tolerance cm³/1000S. : + 5.5
 Spred Tolerance cm³/1000 strokes : 4.5
 Check tolerance cm³/1000S. : 7.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800
 Rack travel in mm : 0.50
 Tolerance mm : + 0.20

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900
 Aneroid pressure hPa : -
 Del. quantity cm³/1000 strokes : 179.0
 Tolerance cm³/1000 strokes : + 1.0
 Check tolerance cm³/1000S. : + 3.5
 Spred Tolerance cm³/1000 strokes : 4.0
 Check tolerance cm³/1000S. : 7.5

RATED SPEED

| | | |
|-------------------------------|---|--------|
| control lever position degree | : | 100.0 |
| Tolerance degree | : | + 4.0 |
| rack travel mm | : | 10.30 |
| Rated speed rpm | : | 925 |
| Tolerance 1/min | : | + 5 |
| rack travel mm | : | 4.00 |
| Rated speed rpm | : | 975 |
| Tolerance 1/min | : | + 15 |
| rack travel mm | : | 0.85 |
| Tolerance mm | : | + 0.55 |
| Rated speed rpm | : | 1125 |
| rack travel mm | : | 4.00 |
| Rated speed rpm | : | 995 |

LOW IDLE

control lever position degree : 74.0
 tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 400
 rack travel mm : 3.90

Testing:

| | | |
|-----------------|---|--------|
| Rated speed rpm | : | 400 |
| rack travel mm | : | 4.40 |
| Tolerance mm | : | + 0.10 |
| rack travel mm | : | 2.00 |
| Rated speed rpm | : | 450 |
| Tolerance 1/min | : | + 30 |

TORQUE CONTROL

| | | |
|-----------------|---|--------|
| Rated speed rpm | : | 900 |
| rack travel mm | : | 11.35 |
| Tolerance mm | : | + 0.05 |

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

| | | |
|-----------------|---|-------|
| Rated speed rpm | : | 550 |
| Pressure hPa | : | 1300 |
| rack travel mm | : | 11.35 |

Tolerance mm : + 0.05

MEASUREMENT

Pressure hPa : 650
Rated speed rpm : 550
rack travel mm : 10.25
Tolerance mm : + 0.10

Rated speed rpm : 550

Pressure hPa : 640
rack travel mm : 11.00
Tolerance mm : + 0.05

Pressure hPa : 560
rack travel mm : 10.55
Tolerance mm : + 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -
Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 165.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 3.5

BREAKAWAY

Rack travel in mm : 10.30
Rated speed rpm : 925
Tolerance 1/min : + 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : + 0.50
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : + 10.0
Check tolerance
cm³/1000S. : + 14.0

LOW IDLE

Rated speed rpm : 400
rack travel mm : 4.40
Tolerance mm : + 0.30
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 5.5
Spread
Tolerance
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000S. : 7.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.07.95
Test oil : ISO 4113

Combination No. : 0 402 076 7480

Injection pump
Pump designation : PES6P110A720RS3305
EP type number : -1
: 0 412 016 742

Governor
Governor design. : RSV300...1100P1A555
Governor no. : 0 421 833 379

Cust. part No. : 9275362

Customer-spec. information
Customer : LIEBHERR
Motor : D 926 TI
Power KW : 220.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Overflow quantity
min. l/h : 160
Tolerance l/h : + 10.0

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 089
Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 3.20
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : + 0.30

Check
tolerance °NW : + 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 11.85
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 200.0

Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 3.5
 Spred
 Tolerance
 cm³/1000 strokes : 4.0
 Check tolerance
 cm³/1000S. : 7.5
 Rated speed rpm : 400
 Rack travel in mm : 4.40
 Tolerance mm : + 0.30
 Del. quantity
 cm³/1000 strokes : 13.0
 Tolerance
 cm³/1000 strokes : + 3.0
 Check tolerance
 cm³/1000S. : + 5.5
 Spred
 Tolerance
 cm³/1000 strokes : 4.5
 Check tolerance
 cm³/1000S. : 7.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800
 Rack travel in mm : 0.50
 Tolerance mm : + 0.20

FULL LOAD DELIVERY AT FULL LOAD STOP

Aneroid pressure
 hPa : -
 Del. quantity
 cm³/1000 strokes : 200.0
 Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 3.5
 Spred
 Tolerance
 cm³/1000 strokes : 4.0
 Check tolerance
 cm³/1000S. : 7.5

RATED SPEED

control lever
 position degree : 109.0
 tolerance degree : + 4.0
 rack travel mm : 10.85
 Rated speed rpm : 925
 Tolerance 1/min : + 5
 rack travel mm : 4.00
 Rated speed rpm : 975
 Tolerance 1/min : + 15
 rack travel mm : 0.85
 Tolerance mm : + 0.55
 Rated speed rpm : 1125
 rack travel mm : 4.00
 Rated speed rpm : 995

LOW IDLE

control lever
 position degree : 78.0
 tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 400
 rack travel mm : 3.90

Testing:

Rated speed rpm : 400
 rack travel mm : 4.40
 Tolerance mm : + 0.10
 rack travel mm : 2.00
 Rated speed rpm : 510
 Tolerance 1/min : + 30

TORQUE CONTROL

Rated speed rpm : 900
 rack travel mm : 11.85
 Tolerance mm : + 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 550
Pressure hPa : 1300
rack travel mm : 11.85
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 550
rack travel mm : 9.65
Tolerance mm : \pm 0.10

Rated speed rpm : 550

Pressure hPa : 800
rack travel mm : 11.25
Tolerance mm : \pm 0.05

Pressure hPa : 670
rack travel mm : 10.25
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.5

BREAKAWAY

Rack travel in mm : 10.85
Rated speed rpm : 925
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 400
rack travel mm : 4.40
Tolerance mm : \pm 0.30
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 5.5
Spred
Tolerance
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000S. : 7.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.07.95
Test oil : ISO 4113

Combination No. : 0 402 076 748E

Injection pump
Pump designation : PES6P110A720RS3305
: -1
EP type number : 0 412 016 742

Governor
Governor design. : RSV300...1100P1A555
Governor no. : 0 421 833 379

Cust. part No. : 9277045

Customer-spec. information

Customer : LIEBHERR
Motor : D 926 TI
Power KW : 185.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Overflow quantity
min. l/h : 160
Tolerance l/h : + 10.0

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 089
Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 3.20
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : + 0.30
Check
tolerance °NW : + 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 10.75
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 162.0

Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 3.5
 Spred
 Tolerance
 cm³/1000 strokes : 4.0
 Check tolerance
 cm³/1000S. : 7.5
 Rated speed rpm : 400
 Rack travel in mm : 4.40
 Del. quantity
 cm³/1000 strokes : 13.0
 Tolerance
 cm³/1000 strokes : + 3.0
 Check tolerance
 cm³/1000S. : + 5.5
 Spred
 Tolerance
 cm³/1000 strokes : 4.5
 Check tolerance
 cm³/1000S. : 7.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800
 Rack travel in mm : 0.50
 Tolerance mm : + 0.20

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
 Aneroid pressure
 hPa : -
 Del. quantity
 cm³/1000 strokes : 162.0
 Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 3.5
 Spred
 Tolerance
 cm³/1000 strokes : 4.0
 Check tolerance
 cm³/1000S. : 7.5

RATED SPEED

control lever
 position degree : 109.0
 tolerance degree : + 4.0
 rack travel mm : 10.85
 Rated speed rpm : 1045
 Tolerance 1/min : + 5
 rack travel mm : 4.00
 Rated speed rpm : 1100
 Tolerance 1/min : + 15
 rack travel mm : 0.85
 Tolerance mm : + 0.55
 Rated speed rpm : 1130
 rack travel mm : 4.00
 Rated speed rpm : 1100

LOW IDLE

control lever
 position degree : 78.0
 tolerance degree : + 4.0
 Setting point w/out bumper spring

Rated speed rpm : 400
 rack travel mm : 3.90

Testing:

Rated speed rpm : 400
 rack travel mm : 4.40
 Tolerance mm : + 0.10
 rack travel mm : 2.00
 Rated speed rpm : 450
 Tolerance 1/min : + 30

TORQUE CONTROL

Rated speed rpm : 1000
 rack travel mm : 10.75
 Tolerance mm : + 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1300
rack travel mm : 10.75
Tolerance mm : + - 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 9.00
Tolerance mm : + - 0.10

Rated speed rpm : 500

Pressure hPa : 535
rack travel mm : 10.45
Tolerance mm : + - 0.05

Pressure hPa : -
rack travel mm : 9.95
Tolerance mm : + - 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 134.0
Tolerance
cm³/1000 strokes : + - 1.0
Check tolerance
cm³/1000S. : + - 3.5

BREAKAWAY

Rack travel in mm : 10.85
Rated speed rpm : 1045
Tolerance 1/min : + - 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : + - 0.50
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : + - 10.0
Check tolerance
cm³/1000S. : + - 14.0

LOW IDLE

Rated speed rpm : 400
rack travel mm : 4.40
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 5.5
Spread
Tolerance
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000S. : 7.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 29.06.95
Test oil : ISO 4113

Combination No. : 0 402 076 771

Injection pump
Pump designation : PES6P120A720RS3340
EP type number : 0 412 026 773

Governor
Governor design. : RSV650...1100P8A566
: -1
Governor no. : 0 421 833 452

Cust. part No. :

Customer-spec. information
Customer : FNH-GEOTECH
Power KW : 201.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 1.5

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x Length mm : 600

REMARKS

Test hydr. locking device for starting with 800...1200 hPa air pressure.

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 3.60
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.30
Check tolerance °NW : + 0.75

Start of delivery blocking

Check tolerance °NW : + 0.25

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 11.85
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 166.0

Tolerance cm³/1000 strokes : + 1.0
 Check tolerance cm³/1000S. : + 5.0
 Spread
 Tolerance cm³/1000 strokes : 5.0
 Check tolerance cm³/1000S. : 9.0
 Rated speed rpm : 650
 Rack travel in mm : 4.80
 Tolerance mm : + 0.20
 Del. quantity cm³/1000 strokes : 23.0
 Tolerance cm³/1000 strokes : + 3.0
 Check tolerance cm³/1000S. : + 6.0
 Spread
 Tolerance cm³/1000 strokes : 8.0
 Check tolerance cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800
 Rack travel in mm : 0.50
 Tolerance mm : + 0.20
 governor spring pre-tension click setting x : 2.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
 Aneroid pressure hPa : 1600
 Del. quantity cm³/1000 strokes : 166.0
 Tolerance cm³/1000 strokes : + 1.0
 Check tolerance cm³/1000S. : + 5.0
 Spread

Tolerance cm³/1000 strokes : 5.0
 Check tolerance cm³/1000S. : 9.0

RATED SPEED

control lever position degree : 104.0
 tolerance degree : + 4.0
 rack travel mm : 4.00
 Rated speed rpm : 1175

LOW IDLE

control lever position degree : 80.0
 tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 650
 rack travel mm : 4.30

Testing:

Rated speed rpm : 650
 rack travel mm : 4.80
 Tolerance mm : + 0.10
 rack travel mm : 2.00
 Rated speed rpm : 750

TORQUE CONTROL

Rated speed rpm : 1100
 rack travel mm : 11.85
 Tolerance mm : + 0.05
 Rated speed rpm : 900
 rack travel mm : 12.40
 Tolerance mm : + 0.10

Rated speed rpm : 700
 rack travel mm : 12.40
 Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1600
rack travel mm : 12.40
Tolerance mm : + 0.10

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 8.00
Tolerance mm : + 0.15

Rated speed rpm : 500

Pressure hPa : 1125
rack travel mm : 12.00
Tolerance mm : + 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1600
Rated speed rpm : 900
Del. quantity
cm³/1000 strokes : 184.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 86.5
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : + 0.50
Del. quantity
cm³/1000 strokes : 150.0
Tolerance
cm³/1000 strokes : + 15.0
Check tolerance
cm³/1000S. : + 19.0

LOW IDLE

Rated speed rpm : 650
rack travel mm : 4.80
Tolerance mm : + 0.20
Del. quantity
cm³/1000 strokes : 23.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 30.05.95
Test oil : ISO 4113

Combination No. : 0 402 076 776

Injection pump
Pump designation : PES6P110A720RS3305
: -2
EP type number : 0 412 016 750

Governor
Governer design. : RSV300...1100P1A598
Governer no. : 0 421 833 473

Cust. part No. : 9278136

Customer-spec. information
Customer : LIEBHERR
Motor : D 926 TI
Power KW : 180.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Overflow quantity
min. l/h : 160
Tolerance l/h : + 10.0

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 089
Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 3.20
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.30
Check
tolerance °NW : + 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 10.30
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 156.0

Tolerance cm³/1000 strokes : + 1.0
 Check tolerance cm³/1000S. : + 3.5
 Spred
 Tolerance cm³/1000 strokes : 4.0
 Check tolerance cm³/1000S. : 7.5
 Rated speed rpm : 400
 Rack travel in mm : 4.80
 Tolerance mm : + 0.10
 Del. quantity cm³/1000 strokes : 13.0
 Tolerance cm³/1000 strokes : + 3.0
 Check tolerance cm³/1000S. : + 5.5
 Spred
 Tolerance cm³/1000 strokes : 4.5
 Check tolerance cm³/1000S. : 7.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800
 Rack travel in mm : 0.50
 Tolerance mm : + 0.20
 governor spring pre-tension
 click setting x : 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900
 Aneroid pressure hPa : -
 Del. quantity cm³/1000 strokes : 156.0
 Tolerance cm³/1000 strokes : + 1.0
 Check tolerance cm³/1000S. : + 3.5
 Spred

Tolerance cm³/1000 strokes : 4.0
 Check tolerance cm³/1000S. : 7.5

RATED SPEED

control lever position degree : 97.0
 tolerance degree : + 4.0
 rack travel mm : 9.30
 Rated speed rpm : 940
 Tolerance 1/min : + 5
 rack travel mm : 4.00
 Rated speed rpm : 975
 Tolerance 1/min : + 15
 rack travel mm : 0.85
 Tolerance mm : + 0.55
 Rated speed rpm : 1150
 rack travel mm : 4.00
 Rated speed rpm : 985

LOW IDLE

control lever position degree : 72.0
 tolerance degree : + 4.0
 Setting point w/out bumper spring

Rated speed rpm : 400
 rack travel mm : 4.30

Testing:

Rated speed rpm : 400
 rack travel mm : 4.80
 Tolerance mm : + 0.10
 rack travel mm : 2.00
 Rated speed rpm : 500
 Tolerance 1/min : + 30

TORQUE CONTROL

Rated speed rpm : 900
 rack travel mm : 10.30
 Tolerance mm : + 0.05
 Rated speed rpm : 700
 rack travel mm : 10.30

Tolerance mm : + - 0.10
Rated speed rpm : 500
rack travel mm : 10.30
Tolerance mm : + - 0.10

Check tolerance cm³/1000S. : 7.5

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : -
Rated speed rpm : 500
Del. quantity cm³/1000 strokes : 154.0
Tolerance cm³/1000 strokes : + - 3.0
Check tolerance cm³/1000S. : + - 6.0

BREAKAWAY

Rack travel in mm : 9.30
Rated speed rpm : 940
Tolerance 1/min : + - 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : + - 0.50
Del. quantity cm³/1000 strokes : 145.0
Tolerance cm³/1000 strokes : + - 15.0
Check tolerance cm³/1000S. : + - 19.0

LOW IDLE

Rated speed rpm : 400
rack travel mm : 4.80
Tolerance mm : + - 0.10
Del. quantity cm³/1000 strokes : 13.0
Tolerance cm³/1000 strokes : + - 3.0
Check tolerance cm³/1000S. : + - 5.5
Spred
Tolerance cm³/1000 strokes : 4.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 30.05.95
Test oil : ISO 4113

Combination No. : 0 402 076 776A

Injection pump
Pump designation : PES6P110A720RS3305
: -2
EP type number : 0 412 016 750

Governor
Governor design. : RSV300...1100P1A598
Governor no. : 0 421 833 473

Cust. part No. : 9278136

Customer-spec. information

Customer : LIEBHERR
Motor : D 926 TI
Power KW : 180.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Overflow quantity
min. l/h : 160
Tolerance l/h : + 10.0

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 089
Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 3.20
Tolerance mm : + 0.05
test only : + 0.10
Rack travel in mm : 10.50
Tolerance mm : + 1.50
Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.30
Check
tolerance °NW : + 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 10.30
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 156.0

Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 3.5
 Spred
 Tolerance
 cm³/1000 strokes : 4.0
 Check tolerance
 cm³/1000S. : 7.5
 Rated speed rpm : 400
 Rack travel in mm : 4.80
 Tolerance mm : + 0.10
 Del. quantity
 cm³/1000 strokes : 13.0
 Tolerance
 cm³/1000 strokes : + 3.0
 Check tolerance
 cm³/1000S. : + 5.5
 Spred
 Tolerance
 cm³/1000 strokes : 4.5
 Check tolerance
 cm³/1000S. : 7.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

governor spring
 pre-tension
 click setting x : 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900
 Aneroid pressure
 hPa : -
 Del. quantity
 cm³/1000 strokes : 156.0
 Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 3.5
 Spred
 Tolerance
 cm³/1000 strokes : 4.0
 Check tolerance
 cm³/1000S. : 7.5

RATED SPEED

| | | |
|-----------------|---|--------|
| rack travel mm | : | 9.30 |
| Rated speed rpm | : | 940 |
| Tolerance 1/min | : | + 5 |
| <hr/> | | |
| rack travel mm | : | 0.85 |
| Tolerance mm | : | + 0.55 |
| Rated speed rpm | : | 1150 |
| <hr/> | | |
| rack travel mm | : | 4.00 |
| Rated speed rpm | : | 985 |

LOW IDLE

Setting point w/out bumper spring

| | | |
|-----------------|---|------|
| Rated speed rpm | : | 400 |
| rack travel mm | : | 4.30 |

Testing:

| | | |
|-----------------|---|--------|
| Rated speed rpm | : | 400 |
| rack travel mm | : | 4.80 |
| Tolerance mm | : | + 0.10 |

TORQUE CONTROL

| | | |
|-----------------|---|--------|
| Rated speed rpm | : | 900 |
| rack travel mm | : | 10.30 |
| Tolerance mm | : | + 0.05 |
| <hr/> | | |
| Rated speed rpm | : | 700 |
| rack travel mm | : | 10.30 |
| Tolerance mm | : | + 0.10 |
| <hr/> | | |
| Rated speed rpm | : | 500 |
| rack travel mm | : | 10.30 |
| Tolerance mm | : | + 0.10 |

FUEL DELIVERY CHARACTERISTICS

| | | |
|-------------------------------|---|-------|
| Aneroid pressure | | |
| hPa | : | - |
| Rated speed rpm | : | 500 |
| Del. quantity | | |
| cm ³ /1000 strokes | : | 154.0 |
| Tolerance | | |
| cm ³ /1000 strokes | : | + 3.0 |
| Check tolerance | | |
| cm ³ /1000S. | : | + 6.0 |

BREAKAWAY

Rack travel in mm : 9.30
Rated speed rpm : 940
Tolerance 1/min : + - 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : + - 0.50
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : + - 15.0
Check tolerance
cm³/1000S. : + - 19.0

LOW IDLE

Rated speed rpm : 400
rack travel mm : 4.80
Tolerance mm : + - 0.10
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 5.5
Spred
Tolerance
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000S. : 7.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 27.06.95
Test oil : ISO 4113

Combination No. : 0 402 610 804

Injection pump
Pump designation : PE12P120A500/5RS7376
EP type number : 0 412 620 843

Governor
Governor design. :
Governor no. :

Cust. part No. : 1 2277 436

Customer-spec. information

Customer : MWM
Motor : TBD 616-V12
Power KW : 648.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 019

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 4.60
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 13.00
Tolerance mm : + 0.50

Firing order : 1- 2- 9-10- 5- 6
: - 11- 12- 3- 4
: - 7- 8

Phasing : 0-30-60-90-120-150
: -180-210-240-270
: -300-330

Tolerance : + 0.30
Check
tolerance °NW : + 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 750

Rack travel in mm : 12.35
Tolerance mm : + 0.65

Del. quantity
cm³/1000 strokes : 285.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance cm³/1000S. : + 4.0
 Spread Tolerance cm³/1000 strokes : 6.0
 Check tolerance cm³/1000S. : 9.0
 Rated speed rpm : 325
 Rack travel in mm : 4.20
 Tolerance mm : + 0.20
 Del. quantity cm³/1000 strokes : 30.0
 Tolerance cm³/1000 strokes : + 3.0
 Check tolerance cm³/1000S. : + 6.0
 Spread Tolerance cm³/1000 strokes : 8.0
 Check tolerance cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 750
 Aneroid pressure hPa : -
 Del. quantity cm³/1000 strokes : 285.0
 Tolerance cm³/1000 strokes : + 1.0
 Check tolerance cm³/1000S. : + 4.0
 Spread Tolerance cm³/1000 strokes : 6.0
 Check tolerance cm³/1000S. : 9.0

TORQUE CONTROL

Rated speed rpm : 750
 rack travel mm : 12.35
 Tolerance mm : + 0.05

LOW IDLE

Rated speed rpm : 325
 rack travel mm : 4.20
 Tolerance mm : + 0.20
 Del. quantity cm³/1000 strokes : 30.0
 Tolerance cm³/1000 strokes : + 3.0
 Check tolerance cm³/1000S. : + 6.0
 Spread Tolerance cm³/1000 strokes : 8.0
 Check tolerance cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 27.06.95
Test oil : ISO 4113

Combination No. : 0 402 618 806

Injection pump
Pump designation : PE8P120A500/5RS7377
EP type number : 0 412 628 904

Governor
Governor design. :
Governor no. :

Cust. part No. : 1 2277 429

Customer-spec. information

Customer : MWM
Motor : TBD 616-V16
Power KW : 864.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 019

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 4.60
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 13.00
Tolerance mm : + 0.50

Firing order : 1- 2- 7- 8- 3- 4-
: 5- 6

Phasing : 0-30-45-75-90-120
: -315-345

Tolerance : + 0.30
Check
tolerance °NW : + 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 750

Rack travel in mm : 12.35
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 285.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000s. : + 4.0

Spred
Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 325

Rack travel in mm : 4.20
Tolerance mm : + 0.20

Del. quantity
cm³/1000 strokes : 30.0
Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Spred
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 750
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 285.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0

Spred
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

TORQUE CONTROL

Rated speed rpm : 750
rack travel mm : 12.35
Tolerance mm : + 0.05

LOW IDLE

Rated speed rpm : 325
rack travel mm : 4.20
Tolerance mm : + 0.20

Del. quantity
cm³/1000 strokes : 30.0
Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Spred
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 14.07.95
Test oil : ISO 4113

Combination No. : 0 402 618 807

Injection pump
Pump designation : PE8P120A500/5RS7378
EP type number : 0 412 628 905

Governor
Governor design. :
Governor no. :

Cust. part No. : 1 2277 428

Customer-spec. information

Customer : MWM
Motor : TBD 616-V16
Power KW : 864.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 019

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 4.60
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 13.00
Tolerance mm : + 0.50

Firing order : 1-2-5-6- 3- 4
: - 7- 8

Phasing : 0-30-45-75-270-300
: -315-345

Tolerance
Check
tolerance °NW : + 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 750

Rack travel in mm : 12.35
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 285.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spred _____
Tolerance
cm3/1000 strokes : 6.0

Check tolerance
cm3/1000S. : 9.0

Rated speed rpm : 325

Rack travel in mm : 4.20
Tolerance mm : + 0.20
Del. quantity
cm3/1000 strokes : 30.0
Tolerance
cm3/1000 strokes : + 3.0
Check tolerance
cm3/1000S. : + 6.0
Spred
Tolerance
cm3/1000 strokes : 6.0
Check tolerance
cm3/1000S. : 10.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 750
Aneroid pressure
hPa : -
Del. quantity
cm3/1000 strokes : 285.0
Tolerance
cm3/1000 strokes : + 1.0
Check tolerance
cm3/1000S. : + 4.0
Spred
Tolerance
cm3/1000 strokes : 6.0
Check tolerance
cm3/1000S. : 9.0

TORQUE CONTROL

Rated speed rpm : 750
rack travel mm : 12.35
Tolerance mm : + 0.05

LOW IDLE

Rated speed rpm : 325
rack travel mm : 4.20
Tolerance mm : + 0.20
Del. quantity
cm3/1000 strokes : 30.0
Tolerance
cm3/1000 strokes : + 3.0
Check tolerance
cm3/1000S. : + 6.0
Spred
Tolerance
cm3/1000 strokes : 6.0
Check tolerance
cm3/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 14.07.95
Test oil : ISO 4113

Combination No. : 0 402 618 808

Injection pump
Pump designation : PE8P120A500/5RS7383
EP type number : 0 412 628 908

Governor
Governor design. :
Governor no. :

Cust. part No. : 1 2277 444

Customer-spec. information

Customer : MWM
Motor : TBD 616
Power KW : 432.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 019

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 4.65
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 13.00
Tolerance mm : + 0.50

Firing order : 1- 8- 5- 4- 7
: - 2- 3- 6

Phasing : 0-30-90-120-180
: -210-270-300

Tolerance : + 0.30
Check
tolerance °NW : + 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 750

Rack travel in mm : 12.35
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 285.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000s. : + 4.0

Spred _____
Tolerance
cm³/1000 strokes : 6.0

Check tolerance _____
cm³/1000S. : 9.0

Rated speed rpm : 325

Rack travel in mm : 4.20
Tolerance mm : + - 0.30
Del. quantity
cm³/1000 strokes : 30.0
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 6.0
Spred
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 750
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 285.0
Tolerance
cm³/1000 strokes : + - 1.0
Check tolerance
cm³/1000S. : + - 4.0
Spred
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

TORQUE CONTROL

Rated speed rpm : 750
rack travel mm : 12.35
Tolerance mm : + - 0.05

LOW IDLE

Rated speed rpm : 325
rack travel mm : 4.20
Tolerance mm : + - 0.30
Del. quantity
cm³/1000 strokes : 30.0
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 6.0
Spred
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 19.07.95
Test oil : ISO 4113

Combination No. : 0 402 618 810

Injection pump
Pump designation : PE8P120A300LS7889
EP type number : 0 412 628 912

Governor
Governor design. :
Governor no. :

Cust. part No. : 04221425KZ0165-17

Customer-spec. information

Customer : KHD
Motor : BF8M1015/C

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 4.05
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 0.50

Firing order : 1- 8- 7- 2- 6
: - 5- 4- 3

Phasing : 0-45-90-135-180
: -225-270-315

Tolerance
Check
tolerance °NW : + 0.30

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 950

Rack travel in mm : 13.75
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 350.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spreed
 Tolerance
 cm³/1000 strokes : 5.0

Check tolerance
 cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 4.50
 Tolerance mm : + - 0.20
 Del. quantity
 cm³/1000 strokes : 25.0
 Tolerance
 cm³/1000 strokes : + - 3.0
 Check tolerance
 cm³/1000S. : + - 6.0
 Spreed
 Tolerance
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 950
 Aneroid pressure
 hPa : -
 Del. quantity
 cm³/1000 strokes : 350.0
 Tolerance
 cm³/1000 strokes : + - 1.0
 Check tolerance
 cm³/1000S. : + - 4.0
 Spreed
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

TORQUE CONTROL

Rated speed rpm : 950
 rack travel mm : 13.75
 Tolerance mm : + - 0.05

STARTING FUEL DELIVERY

Rated speed rpm : 100
 rack travel mm : 21.00
 Tolerance mm : + - 0.50
 Del. quantity
 cm³/1000 strokes : 200.0
 Tolerance
 cm³/1000 strokes : + - 20.0
 Check tolerance
 cm³/1000S. : + - 24.0

LOW IDLE

Rated speed rpm : 300
 rack travel mm : 4.50
 Tolerance mm : + - 0.20
 Del. quantity
 cm³/1000 strokes : - 25.0
 Tolerance
 cm³/1000 strokes : + - 3.0
 Check tolerance
 cm³/1000S. : + - 6.0
 Spreed
 Tolerance
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 03.04.92
Test oil : ISO 4113

Combination No. : 0 402 640 823

Injection pump
Pump designation : PE12P120A320LS7805
EP type number : 0 412 620 802

Governor
Governor design. : RQV350...1050PA781
: -1
Governor no. : 0 421 813 890

Cust. part No. :

Customer-spec. information

Customer : MB-NFZ
Motor : OM 444 LA
Power KW : 485.0

TEST BENCH REQUIREMENTS

Inlet Line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Overflow quantity
min. l/h : 155
Tolerance l/h : + 5.0

Test nozzle holder
assembly : 1 688 901 019

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 5.25
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 12- 1- 5- 9- 8
: - 3- 4- 11- 10
: - 2- 6- 7

Phasing : 0-45-60-105-120
: -165-180-225-240
: -285-300-345

Tolerance : + 0.30
Check
tolerance °NW : + 0.50

Start of delivery mark

Barrel no. : 12

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 14.45
Tolerance mm : + 0.05

Del. quantity
 cm³/1000 strokes : 212.0
 Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 4.0
 Spread
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0
 Rated speed rpm : 350
 Rack travel in mm : 5.70
 Tolerance mm : + 0.30
 Del. quantity
 cm³/1000 strokes : 17.0
 Tolerance
 cm³/1000 strokes : + 3.0
 Check tolerance
 cm³/1000S. : + 6.0
 Spread
 Tolerance
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 350
 guide sleeve
 travel mm : 1.55
 Tolerance mm : + 0.25
 Rated speed rpm : 1107
 guide sleeve
 travel mm : 8.05
 Tolerance mm : + 0.25
 Rated speed rpm : 454
 guide sleeve
 travel mm : 3.05
 Tolerance mm : + 0.25
 Rated speed rpm : 900
 guide sleeve
 travel mm : 5.65
 Tolerance mm : + 0.25
 Rated speed rpm : 1204

guide sleeve
 travel mm : 10.05
 Tolerance mm : + 0.25

GUIDE SLEEVE POSITION

Rated speed rpm : 1180
 Rack travel in mm : 16.50
 Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
 Aneroid pressure
 hPa : 1100
 Del. quantity
 cm³/1000 strokes : 212.0
 Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 4.0
 Spread
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

RATED SPEED

control lever
 position degree : 120.0
 tolerance degree : + 4.0
 rack travel mm : 13.45
 Rated speed rpm : 1095
 Tolerance 1/min : + 5
 rack travel mm : 4.00
 Rated speed rpm : 1195
 Tolerance 1/min : + 15
 rack travel mm : 0.75
 Tolerance mm : + 0.75
 Rated speed rpm : 1300

LOW IDLE

control lever
 position degree : 68.0
 tolerance degree : + 4.0

Testing:

Rated speed rpm : 350
 rack travel mm : 5.70
 Tolerance mm : + 0.10

 Rated speed rpm : 250

 CRT mm min. : > 7.00

 Rated speed rpm : 500

TORQUE CONTROL

Rated speed rpm : 1050
 rack travel mm : 14.45
 Tolerance mm : + 0.05

 Rated speed rpm : 600
 rack travel mm : 14.45
 Tolerance mm : + 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

MEASUREMENT

Pressure hPa : -
 Rated speed rpm : 500

 Pressure hPa : 350
 rack travel mm : 0.80
 Tolerance mm : + 0.10

 Pressure hPa : 500
 rack travel mm : 2.15
 Tolerance mm : + 0.15

START CUT-OUT

Rated speed rpm : < 270
 Check speed 1/min : < 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
 hPa : 1100
 Rated speed rpm : 600
 Del. quantity
 cm³/1000 strokes : 211.5
 Tolerance
 cm³/1000 strokes : + 1.5
 Check tolerance
 cm³/1000S. : + 4.5
 Spread

Tolerance
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

 Aneroid pressure
 hPa : -
 Rated speed rpm : 500
 Del. quantity
 cm³/1000 strokes : 142.0
 Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 4.0
 Spread
 Tolerance
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 13.45
 Rated speed rpm : 1095
 Tolerance 1/min : + 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 220.0
 Tolerance
 cm³/1000 strokes : + 10.0
 Check tolerance
 cm³/1000S. : + 14.0

LOW IDLE

Rated speed rpm : 350
 rack travel mm : 5.70
 Tolerance mm : + 0.30
 Del. quantity
 cm³/1000 strokes : 17.0
 Tolerance
 cm³/1000 strokes : + 3.0
 Check tolerance
 cm³/1000S. : + 6.0
 Spread
 Tolerance
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.06.95
Test oil : ISO 4113

Combination No. : 0 402 646 626

Injection pump
Pump designation : PE6P120A320RS7299
EP type number : 0 412 626 885

Governor
Governor design. : RQV275...1000PA1076K
Governor no. : 0 421 815 357

Cust. part No. : 1280160

Customer-spec. information

Customer : DAF
Motor : WS 268 M
Power KW : 268.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Overflow quantity
min. l/h : 160
Tolerance l/h : + 20.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 4.85
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : + 0.30
Check
tolerance °NW : + 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 980

Rack travel in mm : 13.55
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 250.0

Tolerance
 cm³/1000 strokes : + 1.0

 Check tolerance
 cm³/1000S. : + 4.0

 Spred
 Tolerance
 cm³/1000 strokes : 5.0

 Check tolerance
 cm³/1000S. : 9.0

 Rated speed rpm : 275

 Rack travel in mm : 5.60
 Tolerance mm : + 0.10
 Del. quantity
 cm³/1000 strokes : 17.0
 Tolerance
 cm³/1000 strokes : + 3.0
 Check tolerance
 cm³/1000S. : + 6.0
 Spred
 Tolerance
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 275
 guide sleeve
 travel mm : 2.14
 Tolerance mm : + 0.15

 Rated speed rpm : 1045
 guide sleeve
 travel mm : 9.82
 Tolerance mm : + 0.20

 Rated speed rpm : 689
 guide sleeve
 travel mm : 6.43
 Tolerance mm : + 0.25

 Rated speed rpm : 284
 guide sleeve
 travel mm : 2.27
 Tolerance mm : + 0.25

 Rated speed rpm : 334
 guide sleeve
 travel mm : 3.17
 Tolerance mm : + 0.25

Rated speed rpm : 390
 guide sleeve
 travel mm : 3.79
 Tolerance mm : + 0.25

 Rated speed rpm : 1310
 guide sleeve
 travel mm : 13.50
 Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1130

 Rack travel in mm : 12.60
 Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 980
 Aneroid pressure
 hPa : -
 Del. quantity
 cm³/1000 strokes : 250.0
 Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 4.0
 Spred
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

RATED SPEED

control lever
 position degree : 120.0
 tolerance degree : + 4.0

 rack travel mm : 12.55
 Rated speed rpm : 1042
 Tolerance 1/min : + 5

 rack travel mm : 4.00
 Rated speed rpm : 1160
 Tolerance 1/min : + 15

 rack travel mm : 0.70
 Tolerance mm : + 0.70
 Rated speed rpm : 1275

LOW IDLE

control lever
position degree : 76.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 275
rack travel mm : 4.80
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 390
Tolerance 1/min : + 20

Rated speed rpm : 175

CRT mm min. : > 7.50

TORQUE CONTROL

Rated speed rpm : 980
rack travel mm : 13.55
Tolerance mm : + 0.05

Rated speed rpm : 750
rack travel mm : 13.05
Tolerance mm : + 0.05

Rated speed rpm : 825
rack travel mm : 13.30
Tolerance mm : + 0.10

Rated speed rpm : 600
rack travel mm : 12.10
Tolerance mm : + 0.10

Rated speed rpm : 500
rack travel mm : 11.70
Tolerance mm : + 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 980
Pressure hPa : 1500
rack travel mm : 13.55
Tolerance mm : + 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 980
rack travel mm : 8.60
Tolerance mm : + 0.10

Rated speed rpm : 980
Pressure hPa : 720
rack travel mm : 12.25
Tolerance mm : + 0.05

Pressure hPa : 360
rack travel mm : 9.80
Tolerance mm : + 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 263.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 5.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 154.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0

BREAKAWAY

Rack travel in mm : 12.55
Rated speed rpm : 1042
Tolerance 1/min : + 5

LOW IDLE

Rated speed rpm : 275
rack travel mm : 5.60
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 17.0

Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 20.04.95
Test oil : ISO 4113

Combination No. : 0 402 646 659

Injection pump
Pump designation : PE6P120A720RS7283-1
EP type number : 0 412 626 945

Governor
Governor design. : RQV300...1100PA1061
: -2K
Governor no. : 0 421 815 465

Cust. part No. : 615.60.08.0304

Customer-spec. information

Customer : SNF
Motor : WD615.50
Power KW : 200.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 033

Inlet press. bar : 2.5
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901-105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 4.45
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 14.00
Tolerance mm : + 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.30
Check
tolerance °NW : + 0.75

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 13.30
Tolerance mm : + 0.05

Del. quantity
cm3/1000 strokes : 244.0

Tolerance
cm3/1000 strokes : + 1.0

Check tolerance
cm3/1000s. : + 4.0

Spread

Tolerance cm³/1000 strokes : 6.0
 Check tolerance cm³/1000S. : 9.0
 Rated speed rpm : 300
 Rack travel in mm : 6.30
 Tolerance mm : + 0.30
 Del. quantity cm³/1000 strokes : 27.5
 Tolerance cm³/1000 strokes : + 3.0
 Check tolerance cm³/1000S. : + 6.0
 Speed
 Tolerance cm³/1000 strokes : 8.0
 Check tolerance cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
 guide sleeve travel mm : 1.64
 Tolerance mm : + 0.25
 Rated speed rpm : 1156
 guide sleeve travel mm : 10.32
 Tolerance mm : + 0.25
 Rated speed rpm : 817
 guide sleeve travel mm : 6.93
 Tolerance mm : + 0.25
 Rated speed rpm : 314
 guide sleeve travel mm : 1.82
 Tolerance mm : + 0.25
 Rated speed rpm : 364
 guide sleeve travel mm : 2.49
 Tolerance mm : + 0.25
 Rated speed rpm : 480
 guide sleeve travel mm : 3.56
 Tolerance mm : + 0.25
 Rated speed rpm : 1390

guide sleeve travel mm : 13.50
 Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1230
 Rack travel in mm : 12.30
 Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
 Aneroid pressure hPa : 1200
 Del. quantity cm³/1000 strokes : 244.0
 Tolerance cm³/1000 strokes : + 1.0
 Check tolerance cm³/1000S. : + 4.0
 Speed
 Tolerance cm³/1000 strokes : 6.0
 Check tolerance cm³/1000S. : 9.0

RATED SPEED

control lever position degree : 119.0
 tolerance degree : + 4.0
 rack travel mm : 12.30
 Rated speed rpm : 1145
 Tolerance 1/min : + 8
 rack travel mm : 4.00
 Rated speed rpm : 1255
 Tolerance 1/min : + 15
 rack travel mm : 0.75
 Tolerance mm : + 0.75
 Rated speed rpm : 1350

LOW IDLE

control lever position degree : 75.0
 tolerance degree : + 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 6.30
Tolerance mm : + - 0.10

Rated speed rpm : 200
CRT mm min. : > 8.00

Rated speed rpm : 314

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 13.30
Tolerance mm : + - 0.05

Rated speed rpm : 700
rack travel mm : 12.15
Tolerance mm : + - 0.10

Rated speed rpm : 900
rack travel mm : 12.90
Tolerance mm : + - 0.15

Rated speed rpm : 500
rack travel mm : 12.10
Tolerance mm : + - 0.15

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1100
Pressure hPa : 1200
rack travel mm : 13.30
Tolerance mm : + - 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 1100
rack travel mm : 11.10
Tolerance mm : + - 0.10

Rated speed rpm : 1100

Pressure hPa : 500
rack travel mm : 11.80
Tolerance mm : + - 0.10

Pressure hPa : 700
rack travel mm : 12.75
Tolerance mm : + - 0.05

START CUT-OUT

Rated speed rpm : < 220
Check speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : 1200
Rated speed rpm : 700
Del. quantity cm³/1000 strokes : 240.0
Tolerance cm³/1000 strokes : + - 3.0
Check tolerance cm³/1000S. : + - 6.0
Spread
Tolerance cm³/1000 strokes : 8.0
Check tolerance cm³/1000S. : 12.0

Aneroid pressure hPa : -
Rated speed rpm : 500
Del. quantity cm³/1000 strokes : 223.0
Tolerance cm³/1000 strokes : + - 1.0
Check tolerance cm³/1000S. : + - 4.0
Spread
Tolerance cm³/1000 strokes : 8.0
Check tolerance cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 12.30
Rated speed rpm : 1145
Tolerance 1/min : + - 8

STARTING FUEL DELIVERY

Del. quantity cm³/1000 strokes : 160.0
Tolerance cm³/1000 strokes : + - 20.0
Check tolerance cm³/1000S. : + - 24.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 6.30
Tolerance mm : + 0.30
Del. quantity
cm³/1000 strokes : 27.5
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 28.07.95
Test oil : ISO 4113

Combination No. : 0 402 646 746

Injection pump
Pump designation : PE6P120A320LS7872
EP type number : 0 412 626 912

Governor
Governor design. : RQV300...950PA1238
Governor no. : 0 421 814 156

Cust. part No. : 04222809KY0165-17

Customer-spec. information

Customer : KHD
Motor : BF6M1015C
Power KW : 300.0

TEST BENCH REQUIREMENTS

Inlet Line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 4.05
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 0.50

Firing order : 1- 6- 3- 5- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : + 0.30

Check

tolerance °NW : + 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 14.20
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 358.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000s. : + 4.0

Spred
 Tolerance
 cm³/1000 strokes : 6.0

Check tolerance
 cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 5.00
 Tolerance mm : + 0.20
 Del. quantity
 cm³/1000 strokes : 23.0
 Tolerance
 cm³/1000 strokes : + 3.0
 Check tolerance
 cm³/1000S. : + 6.0
 Spred
 Tolerance
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
 guide sleeve
 travel mm : 1.13
 Tolerance mm : + 0.20

Rated speed rpm : 994
 guide sleeve
 travel mm : 10.08
 Tolerance mm : + 0.15

Rated speed rpm : 700
 guide sleeve
 travel mm : 5.10
 Tolerance mm : + 0.25

Rated speed rpm : 1160
 guide sleeve
 travel mm : 13.50
 Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1035
 Rack travel in mm : 13.20
 Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900
 Aneroid pressure
 hPa : 1700
 Del. quantity
 cm³/1000 strokes : 358.0
 Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 4.0
 Spred
 Tolerance
 cm³/1000 strokes : 6.0
 Check tolerance
 cm³/1000S. : 9.0

RATED SPEED

control lever
 position degree : 123.0
 tolerance degree : + 4.0

rack travel mm : 13.20
 Rated speed rpm : 980
 Tolerance 1/min : + 5

rack travel mm : 4.00
 Rated speed rpm : 1055
 Tolerance 1/min : + 15

rack travel mm : 0.50
 Tolerance mm : + 0.50
 Rated speed rpm : 1200

LOW IDLE

control lever
 position degree : 77.0
 tolerance degree : + 4.0

Testing:

Rated speed rpm : 300
 rack travel mm : 5.00
 Tolerance mm : + 0.10

Rated speed rpm : 200

CRT mm min. : > 6.70

Rated speed rpm : 370

TORQUE CONTROL

Rated speed rpm : 900
rack travel mm : 14.20
Tolerance mm : + - 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 400
Pressure hPa : 1700
rack travel mm : 14.20
Tolerance mm : + - 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 400
rack travel mm : 8.90
Tolerance mm : + - 0.20

Rated speed rpm : 400

Pressure hPa : 385
rack travel mm : 9.70
Tolerance mm : + - 0.20

Pressure hPa : 1000
rack travel mm : 13.00
Tolerance mm : + - 0.05

START CUT-OUT

Rated speed rpm : < 220
Check speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : -
Rated speed rpm : 400
Del. quantity cm³/1000 strokes : 230.0
Tolerance cm³/1000 strokes : + - 1.0
Check tolerance cm³/1000S. : + - 4.0
Spread Tolerance cm³/1000 strokes : 8.0

Check tolerance cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 13.20
Rated speed rpm : 980
Tolerance 1/min : + - 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 8.90
Del. quantity cm³/1000 strokes : 230.0
Tolerance cm³/1000 strokes : + - 20.0
Check tolerance cm³/1000S. : + - 24.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 5.00
Tolerance mm : + - 0.20
Del. quantity cm³/1000 strokes : 23.0
Tolerance cm³/1000 strokes : + - 3.0
Check tolerance cm³/1000S. : + - 6.0
Spread Tolerance cm³/1000 strokes : 8.0
Check tolerance cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 01.06.95
Test oil : ISO 4113

Combination No. : 0 402 646 747

Injection pump
Pump designation : PE6P120A320LS7834
EP type number : -10
: 0 412 626 853

Governor
Governor design. : RQV300...1050PA1033
: -22
Governor no. : 0 421 814 146

Cust. part No. : 0260744302

Customer-spec. information

Customer : MB-NFZ
Motor : OM441 LA
Power KW : 230.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Overflow quantity
min. l/h : 140
Tolerance l/h : + 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5

Tolerance bar : + 1.5

Test Lines : 1 680 750 075

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 5.25
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 20.50
Tolerance mm : + 0.50

Firing order : 6- 3- 5- 2- 4-
: 1-

Phasing : 0-60-120-180-240
: -300-360

Tolerance : + 0.30
Check
tolerance °NW : + 0.75

Start of delivery mark

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 550

Rack travel in mm : 14.80
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 230.0

Tolerance mm : +
 cm3/1000 strokes : + 1.0
 Check tolerance mm : +
 cm3/1000S. : + 4.0
 Spred
 Tolerance mm : +
 cm3/1000 strokes : + 5.0
 Check tolerance mm : +
 cm3/1000S. : + 9.0
 Rated speed rpm : 300
 Rack travel in mm : 6.30
 Tolerance mm : +
 0.30
 Del. quantity cm3/1000 strokes : + 13.0
 Tolerance cm3/1000 strokes : +
 3.0
 Check tolerance cm3/1000S. : +
 6.0
 Spred
 Tolerance cm3/1000 strokes : +
 6.0
 Check tolerance cm3/1000S. : +
 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
 guide sleeve travel mm : 1.29
 Tolerance mm : +
 0.20
 Rated speed rpm : 1108
 guide sleeve travel mm : 8.53
 Tolerance mm : +
 0.15
 Rated speed rpm : 558
 guide sleeve travel mm : 4.53
 Tolerance mm : +
 0.25
 Rated speed rpm : 608
 guide sleeve travel mm : 5.03
 Tolerance mm : +
 0.25
 Rated speed rpm : 820
 guide sleeve travel mm : 6.13

Tolerance mm : +
 0.25
 Rated speed rpm : 1183
 guide sleeve travel mm : 10.00
 Tolerance mm : +
 0.25
 Rated speed rpm : 1280
 guide sleeve travel mm : 11.50
 Tolerance mm : +
 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1145
 Rack travel in mm : 13.80
 Tolerance mm : +
 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550
 Aneroid pressure hPa : 1000
 Del. quantity cm3/1000 strokes : 230.0
 Tolerance cm3/1000 strokes : +
 1.0
 Check tolerance cm3/1000S. : +
 4.0
 Spred
 Tolerance cm3/1000 strokes : +
 5.0
 Check tolerance cm3/1000S. : +
 9.0

RATED SPEED

control lever position degree : 121.0
 tolerance degree : +
 4.0
 rack travel mm : 13.80
 Rated speed rpm : 1095
 Tolerance 1/min : +
 5
 rack travel mm : 4.00
 Rated speed rpm : 1190
 Tolerance 1/min : +
 15
 rack travel mm : 0.75
 Tolerance mm : +
 0.75
 Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 66.0
tolerance degree : + - 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 5.20
Tolerance mm : + - 0.10

Rated speed rpm : 200
CRT mm min. : > 7.00

Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 550
rack travel mm : 14.80
Tolerance mm : + - 0.05

Rated speed rpm : 1050
rack travel mm : 14.80
Tolerance mm : + - 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 400
Pressure hPa : 1000
rack travel mm : 14.80
Tolerance mm : + - 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 400
rack travel mm : 10.90
Tolerance mm : + - 0.20

Rated speed rpm : 400

Pressure hPa : 400
rack travel mm : 13.25
Tolerance mm : + - 0.20

Pressure hPa : 500
rack travel mm : 14.10
Tolerance mm : + - 0.20

START CUT-OUT

Rated speed rpm : < 220
Check speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : 1000
Rated speed rpm : 1050
Del. quantity cm³/1000 strokes : 228.0
Tolerance cm³/1000 strokes : + - 3.0
Check tolerance cm³/1000S. : + - 6.0
Spread Tolerance cm³/1000 strokes : 8.0
Check tolerance cm³/1000S. : 12.0

Aneroid pressure hPa : -
Rated speed rpm : 500
Del. quantity cm³/1000 strokes : 138.0
Tolerance cm³/1000 strokes : + - 1.0
Check tolerance cm³/1000S. : + - 4.0
Spread Tolerance cm³/1000 strokes : 8.0
Check tolerance cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 13.80
Rated speed rpm : 1095
Tolerance 1/min : + - 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity cm³/1000 strokes : 210.0
Tolerance cm³/1000 strokes : + - 15.0
Check tolerance cm³/1000S. : + - 19.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 6.30
Tolerance mm : + - 0.30
Del. quantity cm³/1000 strokes : 13.0
Tolerance cm³/1000 strokes : + - 3.0
Check tolerance cm³/1000S. : + - 6.0
Speed
Tolerance cm³/1000 strokes : 6.0
Check tolerance cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 01.06.95
Test oil : ISO 4113

Combination No. : 0 402 646 748

Injection pump
Pump designation : PE6P120A320LS7834
EP type number : -10
: 0 412 626 853

Governor
Governor design. : RQ300/1050PA1030-27
Governor no. : 0 421 801 777

Cust. part No. : 0260744202

Customer-spec. information

Customer : MB-NFZ
Motor : OM441 LA
Power KW : 230.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Overflow quantity
min. l/h : 140
Tolerance l/h : + 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 5.25
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 20.50
Tolerance mm : + 0.50

Firing order : 6- 3- 5- 2- 4-
: 1-

Phasing : 0-60-120-180-240
: -300-360

Tolerance : + 0.30
Check
tolerance °NW : + 0.50

Start of delivery mark

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 550

Rack travel in mm : 14.80
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 230.0

Tolerance
 cm³/1000 strokes : + - 1.0
 Check tolerance
 cm³/1000S. : + - 4.0
 Spred
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0
 Rated speed rpm : 300
 Rack travel in mm : 6.30
 Tolerance mm : + - 0.30
 Del. quantity
 cm³/1000 strokes : 13.0
 Tolerance
 cm³/1000 strokes : + - 3.0
 Check tolerance
 cm³/1000S. : + - 6.0
 Spred
 Tolerance
 cm³/1000 strokes : 6.0
 Check tolerance
 cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
 guide sleeve
 travel mm : 1.78
 Tolerance mm : + - 0.10
 Rated speed rpm : 1104
 guide sleeve
 travel mm : 6.51
 Tolerance mm : + - 0.10
 Rated speed rpm : 1050
 guide sleeve
 travel mm : 6.00
 Tolerance mm : + - 0.10
 Rated speed rpm : 421
 guide sleeve
 travel mm : 4.00
 Tolerance mm : + - 0.10
 Rated speed rpm : 550
 guide sleeve
 travel mm : 6.00
 Tolerance mm : + - 0.10

Rated speed rpm : 1270
 guide sleeve
 travel mm : 11.50
 Tolerance mm : + - 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 600
 Rack travel in mm : 20.00
 Tolerance mm : + - 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550
 Aneroid pressure hPa : 1000
 Del. quantity
 cm³/1000 strokes : 230.0
 Tolerance
 cm³/1000 strokes : + - 1.0
 Check tolerance
 cm³/1000S. : + - 4.0
 Spred
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

RATED SPEED

control lever
 position degree : 99.0
 tolerance degree : + - 4.0
 rack travel mm : 13.80
 Rated speed rpm : 1098
 Tolerance 1/min : + - 8
 rack travel mm : 4.00
 Rated speed rpm : 1200
 Tolerance 1/min : + - 15
 rack travel mm : 0.75
 Tolerance mm : + - 0.75
 Rated speed rpm : 1300

LOW IDLE

control lever
 position degree : 72.0
 tolerance degree : + - 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 5.20
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 405
Tolerance 1/min : + 20

Rated speed rpm : 200

CRT mm min. : > 6.80

TORQUE CONTROL

Rated speed rpm : 550
rack travel mm : 14.80
Tolerance mm : + 0.05

Rated speed rpm : 1050
rack travel mm : 14.80
Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 400
Pressure hPa : 1000
rack travel mm : 14.80
Tolerance mm : + 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 400
rack travel mm : 10.90
Tolerance mm : + 0.20

Rated speed rpm : 400

Pressure hPa : 400
rack travel mm : 13.25
Tolerance mm : + 0.20

Pressure hPa : 500
rack travel mm : 14.10
Tolerance mm : + 0.20

START CUT-OUT

Rated speed rpm : < 220
Check speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 1000

Rated speed rpm : 1050

Del. quantity

cm³/1000 strokes : 228.0

Tolerance

cm³/1000 strokes : + 3.0

Check tolerance

cm³/1000S. : + 6.0

Spread

Tolerance

cm³/1000 strokes : 8.0

Check tolerance

cm³/1000S. : 12.0

Aneroid pressure

hPa : -

Rated speed rpm : 500

Del. quantity

cm³/1000 strokes : 138.0

Tolerance

cm³/1000 strokes : + 1.0

Check tolerance

cm³/1000S. : + 4.0

Spread

Tolerance

cm³/1000 strokes : 8.0

Check tolerance

cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 13.80

Rated speed rpm : 1098

Tolerance 1/min : + 8

STARTING FUEL DELIVERY

Rated speed rpm : 100

Del. quantity

cm³/1000 strokes : 210.0

Tolerance

cm³/1000 strokes : + 15.0

Check tolerance

cm³/1000S. : + 19.0

LOW IDLE

Rated speed rpm : 300

rack travel mm : 6.30
Tolerance mm : + - 0.30
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 6.0
Spred
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 02.06.95
Test oil : ISO 4113

Combination No. : 0 402 646 749

Injection pump
Pump designation : PE6P120A320LS7837
: -10
EP type number : 0 412 626 855

Governor
Governor design. : RQ300/1050PA993-13
Governor no. : 0 421 801 779

Cust. part No. : 0260744002

Customer-spec. information

Customer : MB-NFZ
Motor : OM441 LA
Power KW : 250.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Tolerance l/h : + 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 5.25
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 20.50
Tolerance mm : + 0.50

Firing order : 6- 3- 5- 2- 4-
: 1-

Phasing : 0-60-120-180-240
: -300-360
Tolerance : + 0.30
Check
tolerance °NW : + 0.75

Start of delivery mark

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 550

Rack travel in mm : 15.10
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 252.0

Tolerance
 cm³/1000 strokes : + 1.0

 Check tolerance
 cm³/1000S. : + 4.0

 Spread
 Tolerance
 cm³/1000 strokes : 5.0

 Check tolerance
 cm³/1000S. : 9.0

 Rated speed rpm : 300

 Rack travel in mm : 6.20
 Tolerance mm : + 0.30
 Del. quantity
 cm³/1000 strokes : 19.0

 Tolerance
 cm³/1000 strokes : + 3.0

 Check tolerance
 cm³/1000S. : + 6.0

 Spread
 Tolerance
 cm³/1000 strokes : 6.0

 Check tolerance
 cm³/1000S. : 10.0

Rated speed rpm : 1280
 guide sleeve
 travel mm : 11.50
 Tolerance mm : + 0.50

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
 guide sleeve
 travel mm : 1.85
 Tolerance mm : + 0.10

 Rated speed rpm : 1104
 guide sleeve
 travel mm : 6.34
 Tolerance mm : + 0.10

 Rated speed rpm : 1050
 guide sleeve
 travel mm : 6.00
 Tolerance mm : + 0.10

 Rated speed rpm : 413
 guide sleeve
 travel mm : 4.55
 Tolerance mm : + 0.10

 Rated speed rpm : 510
 guide sleeve
 travel mm : 6.00
 Tolerance mm : + 0.10

GUIDE SLEEVE POSITION

Rated speed rpm : 600

 Rack travel in mm : 20.00
 Tolerance mm : + 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550
 Aneroid pressure
 hPa : 1100
 Del. quantity
 cm³/1000 strokes : 252.0

 Tolerance
 cm³/1000 strokes : + 1.0

 Check tolerance
 cm³/1000S. : + 4.0

 Spread
 Tolerance
 cm³/1000 strokes : 5.0

 Check tolerance
 cm³/1000S. : 9.0

RATED SPEED

control lever
 position degree : 100.0
 tolerance degree : + 4.0

 rack travel mm : 14.10
 Rated speed rpm : 1098
 Tolerance 1/min : + 8

 rack travel mm : 4.00
 Rated speed rpm : 1200
 Tolerance 1/min : + 15

 rack travel mm : 0.75
 Tolerance mm : + 0.75
 Rated speed rpm : 1300

LOW IDLE

control lever
 position degree : 73.0
 tolerance degree : + 4.0

Testing:

| | | |
|-----------------|---|----------|
| Rated speed rpm | : | 300 |
| rack travel mm | : | 5.50 |
| Tolerance mm | : | + - 0.10 |
| | | |
| rack travel mm | : | 2.00 |
| Rated speed rpm | : | 400 |
| Tolerance 1/min | : | + - 20 |
| | | |
| Rated speed rpm | : | 200 |
| CRT mm min. | : | > 8.10 |

TORQUE CONTROL

| | | |
|-----------------|---|----------|
| Rated speed rpm | : | 550 |
| rack travel mm | : | 15.10 |
| Tolerance mm | : | + - 0.05 |
| | | |
| Rated speed rpm | : | 1050 |
| rack travel mm | : | 15.10 |
| Tolerance mm | : | + - 0.10 |

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

| | | |
|-----------------|---|----------|
| Rated speed rpm | : | 400 |
| Pressure hPa | : | 1100 |
| rack travel mm | : | 15.10 |
| Tolerance mm | : | + - 0.05 |

MEASUREMENT

| | | |
|-----------------|---|----------|
| Pressure hPa | : | - |
| Rated speed rpm | : | 400 |
| rack travel mm | : | 9.15 |
| Tolerance mm | : | + - 0.20 |

Rated speed rpm : 400

| | | |
|----------------|---|----------|
| Pressure hPa | : | 150 |
| rack travel mm | : | 10.05 |
| Tolerance mm | : | + - 0.20 |

| | | |
|----------------|---|----------|
| Pressure hPa | : | 550 |
| rack travel mm | : | 13.85 |
| Tolerance mm | : | + - 0.20 |

START CUT-OUT

| | | |
|-------------------|---|-------|
| Rated speed rpm | : | < 220 |
| Check speed 1/min | : | < 240 |

FUEL DELIVERY CHARACTERISTICS

| | | |
|-------------------------------|---|---------|
| Aneroid pressure | : | |
| hPa | : | 1100 |
| Rated speed rpm | : | 1050 |
| Del. quantity | : | |
| cm ³ /1000 strokes | : | 240.0 |
| Tolerance | : | |
| cm ³ /1000 strokes | : | + - 3.0 |
| Check tolerance | : | |
| cm ³ /1000S. | : | + - 6.0 |

| | | |
|-------------------------------|---|------|
| Spread | : | |
| Tolerance | : | |
| cm ³ /1000 strokes | : | 8.0 |
| Check tolerance | : | |
| cm ³ /1000S. | : | 12.0 |

| | | |
|-------------------------------|---|---------|
| Aneroid pressure | : | |
| hPa | : | - |
| Rated speed rpm | : | 500 |
| Del. quantity | : | |
| cm ³ /1000 strokes | : | 135.0 |
| Tolerance | : | |
| cm ³ /1000 strokes | : | + - 1.0 |
| Check tolerance | : | |
| cm ³ /1000S. | : | + - 4.0 |

| | | |
|-------------------------------|---|------|
| Spread | : | |
| Tolerance | : | |
| cm ³ /1000 strokes | : | 8.0 |
| Check tolerance | : | |
| cm ³ /1000S. | : | 12.0 |

BREAKAWAY

| | | |
|-------------------|---|-------|
| Rack travel in mm | : | 14.10 |
| Rated speed rpm | : | 1098 |
| Tolerance 1/min | : | + - 8 |

STARTING FUEL DELIVERY

| | | |
|-------------------------------|---|----------|
| Rated speed rpm | : | 100 |
| Del. quantity | : | |
| cm ³ /1000 strokes | : | 265.0 |
| Tolerance | : | |
| cm ³ /1000 strokes | : | + - 20.0 |
| Check tolerance | : | |
| cm ³ /1000S. | : | + - 24.0 |

LOW IDLE

Rated speed rpm : 300

rack travel mm : 6.20
Tolerance mm : + - 0.30
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 6.0
Spred
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 02.06.95
Test oil : ISO 4113

Combination No. : 0 402 646 750

Injection pump
Pump designation : PE6P120A320LS7836
: -10
EP type number : 0 412 626 854

Governor
Governor design. : RQ300/1050PA1031-21
Governor no. : 0 421 801 772

Cust. part No. : 0260743202

Customer-spec. information

Customer : MB-NFZ
Motor : OM401 LA
Power KW : 200.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Tolerance l/h : + 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 5.55
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 20.50
Tolerance mm : + 0.50

Firing order : 6- 3- 5- 2- 4-
: 1-

Phasing : 0-60-120-180-240
: -300-360

Tolerance : + 0.30
Check
tolerance °NW : + 0.75

Start of delivery mark

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 13.00
Tolerance mm : + 0.05

Det. quantity
cm³/1000 strokes : 190.0

Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 4.0
 Spreed
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0
 Rated speed rpm : 300
 Rack travel in mm : 5.80
 Tolerance mm : + 0.30
 Del. quantity
 cm³/1000 strokes : 19.0
 Tolerance
 cm³/1000 strokes : + 3.0
 Check tolerance
 cm³/1000S. : + 6.0
 Spreed
 Tolerance
 cm³/1000 strokes : 6.0
 Check tolerance
 cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 600
 Rack travel in mm : 20.00
 Tolerance mm : + 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
 Aneroid pressure
 hPa : 800
 Del. quantity
 cm³/1000 strokes : 190.0
 Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 4.0
 Spreed
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

RATED SPEED

| | | |
|-------------------------------|---|--------|
| control lever position degree | : | 96.0 |
| tolerance degree | : | + 4.0 |
| rack travel mm | : | 12.00 |
| Rated speed rpm | : | 1098 |
| Tolerance 1/min | : | + 8 |
| rack travel mm | : | 4.00 |
| Rated speed rpm | : | 1190 |
| Tolerance 1/min | : | + 15 |
| rack travel mm | : | 0.75 |
| Tolerance mm | : | + 0.75 |
| Rated speed rpm | : | 1300 |

LOW IDLE

| | | |
|-------------------------------|---|-------|
| control lever position degree | : | 69.0 |
| tolerance degree | : | + 4.0 |

Testing:

| | | |
|-----------------|---|--------|
| Rated speed rpm | : | 300 |
| rack travel mm | : | 3.50 |
| Tolerance mm | : | + 0.10 |
| rack travel mm | : | 2.00 |
| Rated speed rpm | : | 350 |
| Tolerance 1/min | : | + 20 |
| Rated speed rpm | : | 200 |
| CRT mm min. | : | > 5.10 |

TORQUE CONTROL

| | | |
|-----------------|---|--------|
| Rated speed rpm | : | 1050 |
| rack travel mm | : | 13.00 |
| Tolerance mm | : | + 0.05 |
| Rated speed rpm | : | 550 |
| rack travel mm | : | 13.00 |
| Tolerance mm | : | + 0.10 |

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 400
Pressure hPa : 800
rack travel mm : 13.00
Tolerance mm : + - 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 400
rack travel mm : 10.90
Tolerance mm : + - 0.15

Rated speed rpm : 400

Pressure hPa : 200
rack travel mm : 11.40
Tolerance mm : + - 0.20

Pressure hPa : 350
rack travel mm : 12.25
Tolerance mm : + - 0.20

START CUT-OUT

Rated speed rpm : < 220
Check speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 800
Rated speed rpm : 550
Del. quantity
cm3/1000 strokes : 189.0
Tolerance
cm3/1000 strokes : + - 3.0
Check tolerance
cm3/1000S. : + - 6.0
Spread
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 132.0
Tolerance
cm3/1000 strokes : + - 1.0
Check tolerance
cm3/1000S. : + - 4.0
Spread
Tolerance
cm3/1000 strokes : 8.0

Check tolerance
cm3/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 12.00
Rated speed rpm : 1098
Tolerance 1/min : + - 8

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm3/1000 strokes : 210.0
Tolerance
cm3/1000 strokes : + - 15.0
Check tolerance
cm3/1000S. : + - 19.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 5.80
Tolerance mm : + - 0.30
Del. quantity
cm3/1000 strokes : 19.0
Tolerance
cm3/1000 strokes : + - 3.0
Check tolerance
cm3/1000S. : + - 6.0
Spread
Tolerance
cm3/1000 strokes : 6.0
Check tolerance
cm3/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 01.06.95
Test oil : ISO 4113

Combination No. : 0 402 646 751

Injection pump
Pump designation : PE6P120A320LS7834
EP type number : -10
: 0 412 626 853

Governor
Governor design. : RQ300/1050PA1031-20
Governor no. : 0 421 801 774

Cust. part No. : 0260743402

Customer-spec. information

Customer : MB-NFZ
Motor : OM401 LA
Power KW : 213.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Tolerance l/h : + 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x Length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 5.25
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 20.50
Tolerance mm : + 0.50

Firing order : 6- 3- 5- 2- 4-
: 1

Phasing : 0-60-120-180-240
: -300

Tolerance : + 0.30
Check
tolerance °NW : + 0.50

Start of delivery mark

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 14.20
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 202.0

Tolerance
 cm³/1000 strokes : + - 1.0
 Check tolerance
 cm³/1000S. : + - 4.0
 Spred
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0
 Rated speed rpm : 300
 Rack travel in mm : 7.00
 Tolerance mm : + - 0.30
 Del. quantity
 cm³/1000 strokes : 19.0
 Tolerance
 cm³/1000 strokes : + - 3.0
 Check tolerance
 cm³/1000S. : + - 6.0
 Spred
 Tolerance
 cm³/1000 strokes : 6.0
 Check tolerance
 cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
 guide sleeve
 travel mm : 1.93
 Tolerance mm : + - 0.10
 Rated speed rpm : 1104
 guide sleeve
 travel mm : 6.83
 Tolerance mm : + - 0.10
 Rated speed rpm : 1050
 guide sleeve
 travel mm : 6.50
 Tolerance mm : + - 0.10
 Rated speed rpm : 732
 guide sleeve
 travel mm : 6.13
 Tolerance mm : + - 0.10
 Rated speed rpm : 430
 guide sleeve
 travel mm : 4.39
 Tolerance mm : + - 0.10

Rated speed rpm : 540
 guide sleeve
 travel mm : 6.00
 Tolerance mm : + - 0.10
 Rated speed rpm : 1270
 guide sleeve
 travel mm : 11.50
 Tolerance mm : + - 0.50
 Rated speed rpm : 829
 guide sleeve
 travel mm : 6.38
 Tolerance mm : + - 0.10

GUIDE SLEEVE POSITION

Rated speed rpm : 600
 Rack travel in mm : 20.00
 Tolerance mm : + - 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
 Aneroid pressure
 hPa : 800
 Del. quantity
 cm³/1000 strokes : 202.0
 Tolerance
 cm³/1000 strokes : + - 1.0
 Check tolerance
 cm³/1000S. : + - 4.0
 Spred
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

RATED SPEED

control lever
 position degree : 99.0
 tolerance degree : + - 4.0
 rack travel mm : 13.20
 Rated speed rpm : 1098
 Tolerance 1/min : + - 8
 rack travel mm : 4.00
 Rated speed rpm : 1190
 Tolerance 1/min : + - 15
 rack travel mm : 0.75
 Tolerance mm : + - 0.75

Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 73.0
tolerance degree : + - 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 4.50
Tolerance mm : + - 0.10

rack travel mm : 2.00
Rated speed rpm : 400
Tolerance 1/min : + - 20

Rated speed rpm : 200

CRT mm min. : > 6.10

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 14.20
Tolerance mm : + - 0.05

Rated speed rpm : 550
rack travel mm : 14.20
Tolerance mm : + - 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 400
Pressure hPa : 800
rack travel mm : 14.20
Tolerance mm : + - 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 400
rack travel mm : 10.60
Tolerance mm : + - 0.20

Rated speed rpm : 400

Pressure hPa : 200
rack travel mm : 11.65
Tolerance mm : + - 0.20

Pressure hPa : 350
rack travel mm : 13.10
Tolerance mm : + - 0.20

START CUT-OUT

Rated speed rpm : < 220
Check speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : 800
Rated speed rpm : 550
Del. quantity cm³/1000 strokes : 197.0
Tolerance cm³/1000 strokes : + - 3.0
Check tolerance cm³/1000S. : + - 6.0
Spread
Tolerance cm³/1000 strokes : 8.0
Check tolerance cm³/1000S. : 12.0

Aneroid pressure hPa : -
Rated speed rpm : 500
Del. quantity cm³/1000 strokes : 127.0
Tolerance cm³/1000 strokes : + - 1.0
Check tolerance cm³/1000S. : + - 4.0
Spread
Tolerance cm³/1000 strokes : 8.0
Check tolerance cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 13.20
Rated speed rpm : 1098
Tolerance 1/min : + - 8

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity cm³/1000 strokes : 210.0

Tolerance
cm³/1000 strokes : + - 15.0
Check tolerance
cm³/1000S. : + - 19.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 7.00
Tolerance mm : + - 0.30
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 6.0
Spred
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 02.06.95
Test oil : ISO 4113

Combination No. : 0 402 646 752

Injection pump
Pump designation : PE6P120A320LS7836
: -10
EP type number : 0 412 626 854

Governor
Governor design. : RQ300/1050PA1030-26
Governor no. : 0 421 801 775

Cust. part No. : 0260742602

Customer-spec. information

Customer : MB-NFZ
Motor : OM401 LA
Power KW : 180.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Tolerance l/h : + 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 5.55
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 20.50
Tolerance mm : + 0.50

Firing order : 6- 3- 5- 2- 4-
: 1-

Phasing : 0-60-120-180-240
: -300-360

Tolerance : + 0.30
Check
tolerance °NW : + 0.50

Start of delivery mark

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 12.40
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 173.0

Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 4.0
 Spred
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0
 Rated speed rpm : 300
 Rack travel in mm : 5.80
 Tolerance mm : + 0.30
 Del. quantity
 cm³/1000 strokes : 19.0
 Tolerance
 cm³/1000 strokes : + 3.0
 Check tolerance
 cm³/1000S. : + 6.0
 Spred
 Tolerance
 cm³/1000 strokes : 6.0
 Check tolerance
 cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
 guide sleeve
 travel mm : 1.61
 Tolerance mm : + 0.10
 Rated speed rpm : 1103
 guide sleeve
 travel mm : 6.37
 Tolerance mm : + 0.10
 Rated speed rpm : 1050
 guide sleeve
 travel mm : 6.00
 Tolerance mm : + 0.10
 Rated speed rpm : 431
 guide sleeve
 travel mm : 4.05
 Tolerance mm : + 0.10
 Rated speed rpm : 550
 guide sleeve
 travel mm : 6.00
 Tolerance mm : + 0.10

Rated speed rpm : 1280
 guide sleeve
 travel mm : 11.50
 Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 600
 Rack travel in mm : 20.00
 Tolerance mm : + 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
 Aneroid pressure
 hPa : 700
 Del. quantity
 cm³/1000 strokes : 173.0
 Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 4.0
 Spred
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

RATED SPEED

control lever
 position degree : 95.0
 tolerance degree : + 4.0
 rack travel mm : 11.40
 Rated speed rpm : 1098
 Tolerance 1/min : + 8
 rack travel mm : 4.00
 Rated speed rpm : 1180
 Tolerance 1/min : + 15
 rack travel mm : 0.75
 Tolerance mm : + 0.75
 Rated speed rpm : 1300

LOW IDLE

control lever
 position degree : 72.0
 tolerance degree : + 4.0

Testing:

| | | |
|-----------------|---|----------|
| Rated speed rpm | : | 300 |
| rack travel mm | : | 5.80 |
| Tolerance mm | : | + - 0.10 |
| | | |
| rack travel mm | : | 2.00 |
| Rated speed rpm | : | 415 |
| Tolerance 1/min | : | + - 20 |
| | | |
| Rated speed rpm | : | 200 |
| CRT mm min. | : | > 7.40 |

TORQUE CONTROL

| | | |
|-----------------|---|----------|
| Rated speed rpm | : | 1050 |
| rack travel mm | : | 12.40 |
| Tolerance mm | : | + - 0.05 |
| | | |
| Rated speed rpm | : | 550 |
| rack travel mm | : | 12.40 |
| Tolerance mm | : | + - 0.10 |

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

| | | |
|-----------------|---|----------|
| Rated speed rpm | : | 400 |
| Pressure hPa | : | 700 |
| rack travel mm | : | 12.40 |
| Tolerance mm | : | + - 0.05 |

MEASUREMENT

| | | |
|-----------------|---|----------|
| Pressure hPa | : | - |
| Rated speed rpm | : | 400 |
| rack travel mm | : | 10.90 |
| Tolerance mm | : | + - 0.15 |

Rated speed rpm : 400

| | | |
|----------------|---|----------|
| Pressure hPa | : | 200 |
| rack travel mm | : | 11.45 |
| Tolerance mm | : | + - 0.20 |

| | | |
|----------------|---|----------|
| Pressure hPa | : | 300 |
| rack travel mm | : | 12.00 |
| Tolerance mm | : | + - 0.20 |

START CUT-OUT

| | | |
|-------------------|---|-------|
| Rated speed rpm | : | < 220 |
| Check speed 1/min | : | < 240 |

FUEL DELIVERY CHARACTERISTICS

| | | |
|-------------------------------|---|---------|
| Aneroid pressure | : | |
| hPa | : | 700 |
| Rated speed rpm | : | 550 |
| Del. quantity | | |
| cm ³ /1000 strokes | : | 169.0 |
| Tolerance | | |
| cm ³ /1000 strokes | : | + - 3.0 |
| Check tolerance | | |
| cm ³ /1000S. | : | + - 6.0 |
| Spread | | |
| Tolerance | | |
| cm ³ /1000 strokes | : | 8.0 |
| Check tolerance | | |
| cm ³ /1000S. | : | 12.0 |
| Aneroid pressure | : | |
| hPa | : | - |
| Rated speed rpm | : | 500 |
| Del. quantity | | |
| cm ³ /1000 strokes | : | 132.0 |
| Tolerance | | |
| cm ³ /1000 strokes | : | + - 1.0 |
| Check tolerance | | |
| cm ³ /1000S. | : | + - 4.0 |
| Spread | | |
| Tolerance | | |
| cm ³ /1000 strokes | : | 8.0 |
| Check tolerance | | |
| cm ³ /1000S. | : | 12.0 |

BREAKAWAY

Rack travel in mm : 11.40
Rated speed rpm : 1098
Tolerance 1/min : + - 8

STARTING FUEL DELIVERY

| | | |
|-------------------------------|---|----------|
| Rated speed rpm | : | 100 |
| Del. quantity | | |
| cm ³ /1000 strokes | : | 210.0 |
| Tolerance | | |
| cm ³ /1000 strokes | : | + - 15.0 |
| Check tolerance | | |
| cm ³ /1000S. | : | + - 19.0 |

LOW IDLE

Rated speed rpm : 300

rack travel mm : 5.80
Tolerance mm : + - 0.30
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 6.0
Spred
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 02.06.95
Test oil : ISO 4113

Combination No. : 0 402 646 753

Injection pump
Pump designation : PE6P120A320LS7836
EP type number : -10
: 0 412 626 854

Governor
Governor design. : RQV300...1050PA1065
: -3
Governor no. : 0 421 814 142

Cust. part No. : 0260742802

Customer-spec. information

Customer : MB-NFZ
Motor : OM401 LA
Power KW : 180.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. L/h : 110
Tolerance L/h : ± 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.55
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-
: 1

Phasing : 0-60-120-180-240
: -300

Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 12.40
Tolerance mm : ± 0.05

Del. quantity
cm3/1000 strokes : 173.0

Tolerance mm/cm³/1000 strokes : + 1.0
 Check tolerance mm/cm³/1000S. : + 4.0
 Spread
 Tolerance cm³/1000 strokes : 5.0
 Check tolerance cm³/1000S. : 9.0
 Rated speed rpm : 300
 Rack travel in mm : 5.80
 Tolerance mm : + 0.30
 Del. quantity cm³/1000 strokes : 19.0
 Tolerance cm³/1000 strokes : + 3.0
 Check tolerance cm³/1000S. : + 6.0
 Spread
 Tolerance cm³/1000 strokes : 6.0
 Check tolerance cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
 guide sleeve travel mm : 1.13
 Tolerance mm : + 0.20
 Rated speed rpm : 1108
 guide sleeve travel mm : 9.81
 Tolerance mm : + 0.15
 Rated speed rpm : 370
 guide sleeve travel mm : 2.00
 Tolerance mm : + 0.25
 Rated speed rpm : 420
 guide sleeve travel mm : 2.49
 Tolerance mm : + 0.25
 Rated speed rpm : 750
 guide sleeve travel mm : 4.87

Tolerance mm : + 0.25
 Rated speed rpm : 1310
 guide sleeve travel mm : 13.50
 Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1220
 Rack travel in mm : 11.40
 Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
 Aneroid pressure hPa : 700
 Del. quantity cm³/1000 strokes : 173.0
 Tolerance cm³/1000 strokes : + 1.0
 Check tolerance cm³/1000S. : + 4.0
 Spread
 Tolerance cm³/1000 strokes : 5.0
 Check tolerance cm³/1000S. : 9.0

RATED SPEED

control lever position degree : 101.0
 tolerance degree : + 4.0
 rack travel mm : 11.40
 Rated speed rpm : 1095
 Tolerance 1/min : + 5
 rack travel mm : 4.00
 Rated speed rpm : 1170
 Tolerance 1/min : + 15
 rack travel mm : 0.75
 Tolerance mm : + 0.75
 Rated speed rpm : 1300

LOW IDLE

control lever position degree : 68.0
 tolerance degree : + 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 5.80
Tolerance mm : + - 0.10

Rated speed rpm : 200

CRT mm min. : > 8.70

Rated speed rpm : 400

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 12.40
Tolerance mm : + - 0.05

Rated speed rpm : 550
rack travel mm : 12.40
Tolerance mm : + - 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 400
Pressure hPa : 700
rack travel mm : 12.40
Tolerance mm : + - 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 400
rack travel mm : 10.90
Tolerance mm : + - 0.15

Rated speed rpm : 400

Pressure hPa : 200
rack travel mm : 11.45
Tolerance mm : + - 0.20

Pressure hPa : 300
rack travel mm : 12.00
Tolerance mm : + - 0.20

START CUT-OUT

Rated speed rpm : < 220
Check speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : 700
Rated speed rpm : 550
Del. quantity cm³/1000 strokes : 169.0
Tolerance cm³/1000 strokes : + - 3.0
Check tolerance cm³/1000S. : + - 6.0
Spread
Tolerance cm³/1000 strokes : 8.0
Check tolerance cm³/1000S. : 12.0

Aneroid pressure hPa : -
Rated speed rpm : 500
Del. quantity cm³/1000 strokes : 132.0
Tolerance cm³/1000 strokes : + - 1.0
Check tolerance cm³/1000S. : + - 4.0
Spread
Tolerance cm³/1000 strokes : 8.0
Check tolerance cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 11.40
Rated speed rpm : 1095
Tolerance 1/min : + - 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity cm³/1000 strokes : 210.0
Tolerance cm³/1000 strokes : + - 15.0
Check tolerance cm³/1000S. : + - 19.0

LOW IDLE

Rated speed rpm : 300

rack travel mm : 5.80
Tolerance mm : + - 0.30
Det. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 6.0
Spred
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 02.06.95
Test oil : ISO 4113

Combination No. : 0 402 646 754

Injection pump
Pump designation : PE6P120A320LS7836
: -10
EP type number : 0 412 626 854

Governor
Governor design. : RG300/1050PA1031-22
Governor no. : 0 421 801 773

Cust. part No. : 0260742902

Customer-spec. information

Customer : MB-NFZ
Motor : OM401 LA
Power KW : 180.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Tolerance l/h : + 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 5.55
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 20.50
Tolerance mm : + 0.50

Firing order : 6- 3- 5- 2- 4-
: 1

Phasing : 0-60-120-180-240
: -300

Tolerance : + 0.30
Check
tolerance °NW : + 0.75

Start of delivery mark

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 12.40
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 173.0

Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 4.0
 Spred
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0
 Rated speed rpm : 300
 Rack travel in mm : 5.60
 Tolerance mm : + 0.30
 Del. quantity
 cm³/1000 strokes : 19.0
 Tolerance
 cm³/1000 strokes : + 3.0
 Check tolerance
 cm³/1000S. : + 6.0
 Spred
 Tolerance
 cm³/1000 strokes : 6.0
 Check tolerance
 cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
 guide sleeve
 travel mm : 1.61
 Tolerance mm : + 0.10
 Rated speed rpm : 1103
 guide sleeve
 travel mm : 6.37
 Tolerance mm : + 0.10
 Rated speed rpm : 1050
 guide sleeve
 travel mm : 6.00
 Tolerance mm : + 0.10
 Rated speed rpm : 431
 guide sleeve
 travel mm : 4.05
 Tolerance mm : + 0.10
 Rated speed rpm : 550
 guide sleeve
 travel mm : 6.00
 Tolerance mm : + 0.10

Rated speed rpm : 1280
 guide sleeve
 travel mm : 11.50
 Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 600
 Rack travel in mm : 20.00
 Tolerance mm : + 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
 Aneroid pressure
 hPa : 700
 Del. quantity
 cm³/1000 strokes : 173.0
 Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 4.0
 Spred
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

RATED SPEED

control lever
 position degree : 93.0
 tolerance degree : + 4.0
 rack travel mm : 11.40
 Rated speed rpm : 1098
 Tolerance 1/min : + 8
 rack travel mm : 4.00
 Rated speed rpm : 1180
 Tolerance 1/min : + 15
 rack travel mm : 0.75
 Tolerance mm : + 0.75
 Rated speed rpm : 1300

LOW IDLE

control lever
 position degree : 69.0
 tolerance degree : + 4.0

Testing:

| | | |
|-----------------|---|----------|
| Rated speed rpm | : | 300 |
| rack travel mm | : | 3.50 |
| Tolerance mm | : | + - 0.10 |
| rack travel mm | : | 2.00 |
| Rated speed rpm | : | 350 |
| Tolerance 1/min | : | + - 20 |
| Rated speed rpm | : | 200 |
| CRT mm min. | : | > 5.10 |

TORQUE CONTROL

| | | |
|-----------------|---|----------|
| Rated speed rpm | : | 1050 |
| rack travel mm | : | 12.40 |
| Tolerance mm | : | + - 0.05 |
| Rated speed rpm | : | 550 |
| rack travel mm | : | 12.40 |
| Tolerance mm | : | + - 0.10 |

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

| | | |
|-----------------|---|----------|
| Rated speed rpm | : | 400 |
| Pressure hPa | : | 700 |
| rack travel mm | : | 12.40 |
| Tolerance mm | : | + - 0.05 |

MEASUREMENT

| | | |
|-----------------|---|----------|
| Pressure hPa | : | - |
| Rated speed rpm | : | 400 |
| rack travel mm | : | 10.90 |
| Tolerance mm | : | + - 0.15 |

Rated speed rpm : 400

| | | |
|----------------|---|----------|
| Pressure hPa | : | 200 |
| rack travel mm | : | 11.45 |
| Tolerance mm | : | + - 0.20 |

| | | |
|----------------|---|----------|
| Pressure hPa | : | 300 |
| rack travel mm | : | 12.00 |
| Tolerance mm | : | + - 0.20 |

START CUT-OUT

| | | |
|-------------------|---|-------|
| Rated speed rpm | : | < 220 |
| Check speed 1/min | : | < 240 |

FUEL DELIVERY CHARACTERISTICS

| | | |
|-------------------------------|---|---------|
| Aneroid pressure | | |
| hPa | : | 700 |
| Rated speed rpm | : | 550 |
| Del. quantity | | |
| cm ³ /1000 strokes | : | 169.0 |
| Tolerance | | |
| cm ³ /1000 strokes | : | + - 3.0 |
| Check tolerance | | |
| cm ³ /1000S. | : | + - 6.0 |
| Spread | | |
| Tolerance | | |
| cm ³ /1000 strokes | : | 8.0 |
| Check tolerance | | |
| cm ³ /1000S. | : | 12.0 |

| | | |
|-------------------------------|---|---------|
| Aneroid pressure | | |
| hPa | : | - |
| Rated speed rpm | : | 500 |
| Del. quantity | | |
| cm ³ /1000 strokes | : | 132.0 |
| Tolerance | | |
| cm ³ /1000 strokes | : | + - 1.0 |
| Check tolerance | | |
| cm ³ /1000S. | : | + - 4.0 |
| Spread | | |
| Tolerance | | |
| cm ³ /1000 strokes | : | 8.0 |
| Check tolerance | | |
| cm ³ /1000S. | : | 12.0 |

BREAKAWAY

| | | |
|-------------------|---|-------|
| Rack travel in mm | : | 11.40 |
| Rated speed rpm | : | 1098 |
| Tolerance 1/min | : | + - 8 |

STARTING FUEL DELIVERY

| | | |
|-------------------------------|---|----------|
| Rated speed rpm | : | 100 |
| Del. quantity | | |
| cm ³ /1000 strokes | : | 210.0 |
| Tolerance | | |
| cm ³ /1000 strokes | : | + - 15.0 |
| Check tolerance | | |
| cm ³ /1000S. | : | + - 19.0 |

LOW IDLE

Rated speed rpm : 300

rack travel mm : 5.60
Tolerance mm : + - 0.30
Del. quantity
cm3/1000 strokes : 19.0
Tolerance
cm3/1000 strokes : + - 3.0
Check tolerance
cm3/1000S. : + - 6.0
Speed
Tolerance
cm3/1000 strokes : 6.0
Check tolerance
cm3/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 02.06.95
Test oil : ISO 4113

Combination No. : 0 402 646 755

Injection pump
Pump designation : PE6P120A320LS7836-2
EP type number : D 412 626 944

Governor
Governor design. : RQV300...1050PA1033
: -20
Governor no. : 0 421 814 140

Cust. part No. : 0260742702

Customer-spec. information

Customer : MB-NFZ
Motor : OM401 LA
Power KW : 180.0

TEST BENCH REQUIREMENTS

Inlet Line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Tolerance l/h : + 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 5.55
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 20.50
Tolerance mm : + 0.50

Firing order : 6- 3- 5- 2- 4-
: 1-

Phasing : 0-60-120-180-240
: -300-360

Tolerance : + 0.30
Check
tolerance °NW : + 0.75

Start of delivery mark

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 12.40
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 173.0

Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 4.0
 Spred
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0
 Rated speed rpm : 300
 Rack travel in mm : 5.80
 Tolerance mm : + 0.30
 Del. quantity
 cm³/1000 strokes : 19.0
 Tolerance
 cm³/1000 strokes : + 3.0
 Check tolerance
 cm³/1000S. : + 6.0
 Spred
 Tolerance
 cm³/1000 strokes : 6.0
 Check tolerance
 cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
 guide sleeve
 travel mm : 1.29
 Tolerance mm : + 0.20
 Rated speed rpm : 1107
 guide sleeve
 travel mm : 8.52
 Tolerance mm : + 0.15
 Rated speed rpm : 558
 guide sleeve
 travel mm : 4.53
 Tolerance mm : + 0.25
 Rated speed rpm : 608
 guide sleeve
 travel mm : 5.03
 Tolerance mm : + 0.25
 Rated speed rpm : 820
 guide sleeve
 travel mm : 6.13
 Tolerance mm : + 0.25

Rated speed rpm : 1183
 guide sleeve
 travel mm : 10.00
 Tolerance mm : + 0.25
 Rated speed rpm : 1280
 guide sleeve
 travel mm : 11.50
 Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1150
 Rack travel in mm : 11.40
 Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
 Aneroid pressure
 hPa : 700
 Del. quantity
 cm³/1000 strokes : 173.0
 Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 4.0
 Spred
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

RATED SPEED

control lever
 position degree : 119.0
 tolerance degree : + 4.0
 rack travel mm : 11.40
 Rated speed rpm : 1095
 Tolerance 1/min : + 5
 rack travel mm : 4.00
 Rated speed rpm : 1170
 Tolerance 1/min : + 15
 rack travel mm : 0.75
 Tolerance mm : + 0.75
 Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 66.0
tolerance degree : + - 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 5.80
Tolerance mm : + - 0.10

Rated speed rpm : 200

CRT mm min. : > 7.60

Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 12.40
Tolerance mm : + - 0.05

Rated speed rpm : 550
rack travel mm : 12.40
Tolerance mm : + - 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 400
Pressure hPa : 700
rack travel mm : 12.40
Tolerance mm : + - 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 400
rack travel mm : 10.90
Tolerance mm : + - 0.15

Rated speed rpm : 400

Pressure hPa : 200
rack travel mm : 11.45
Tolerance mm : + - 0.20

Pressure hPa : 300
rack travel mm : 12.00
Tolerance mm : + - 0.20

START CUT-OUT

Rated speed rpm : < 220
Check speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : 700
Rated speed rpm : 550
Del. quantity cm³/1000 strokes : 169.0
Tolerance cm³/1000 strokes : + - 3.0
Check tolerance cm³/1000S. : + - 6.0
Spread Tolerance cm³/1000 strokes : 8.0
Check tolerance cm³/1000S. : 12.0

Aneroid pressure hPa : -
Rated speed rpm : 500
Del. quantity cm³/1000 strokes : 132.0
Tolerance cm³/1000 strokes : + - 1.0
Check tolerance cm³/1000S. : + - 4.0
Spread Tolerance cm³/1000 strokes : 8.0
Check tolerance cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 11.40
Rated speed rpm : 1095
Tolerance 1/min : + - 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity cm³/1000 strokes : 210.0
Tolerance cm³/1000 strokes : + - 15.0
Check tolerance cm³/1000S. : + - 19.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 5.80
Tolerance mm : + - 0.30
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 6.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS**Note remarks**

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 12.06.95
Test oil : ISO 4113

Combination No. : 0 402 646 756

Injection pump
Pump designation : PE6P120A320LS7834
: -10
EP type number : 0 412 626 853

Governor
Governor design. : RQV300...1050PA1168
: -6
Governor no. : 0 421 814 138

Cust. part No. : 0260743902

Customer-spec. information

Customer : MB-NFZ
Motor : OM401 LA
Power KW : 230.0

TEST BENCH REQUIREMENTS

Inlet Line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Tolerance l/h : + 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 5.25
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 20.50
Tolerance mm : + 0.50

Firing order : 6- 3- 5- 2- 4-
: 1-

Phasing : 0-60-120-180-240
: -300-360

Tolerance : + 0.30
Check
tolerance °NW : + 0.75

Start of delivery mark

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 550

Rack travel in mm : 14.80
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 230.0

Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 4.0
 Spreed
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0
 Rated speed rpm : 300
 Rack travel in mm : 6.30
 Tolerance mm : + 0.30
 Del. quantity
 cm³/1000 strokes : 13.0
 Tolerance
 cm³/1000 strokes : + 3.0
 Check tolerance
 cm³/1000S. : + 6.0
 Spreed
 Tolerance
 cm³/1000 strokes : 6.0
 Check tolerance
 cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
 guide sleeve
 travel mm : 1.29
 Tolerance mm : + 0.20
 Rated speed rpm : 1108
 guide sleeve
 travel mm : 8.53
 Tolerance mm : + 0.15
 Rated speed rpm : 558
 guide sleeve
 travel mm : 4.53
 Tolerance mm : + 0.25
 Rated speed rpm : 608
 guide sleeve
 travel mm : 5.03
 Tolerance mm : + 0.25
 Rated speed rpm : 820
 guide sleeve
 travel mm : 6.13
 Tolerance mm : + 0.25

Rated speed rpm : 1183
 guide sleeve
 travel mm : 10.00
 Tolerance mm : + 0.25
 Rated speed rpm : 1280
 guide sleeve
 travel mm : 11.50
 Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1145
 Rack travel in mm : 13.80
 Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 230.0
 Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 4.0
 Spreed
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

RATED SPEED

control lever
 position degree : 121.0
 tolerance degree : + 4.0
 rack travel mm : 13.80
 Rated speed rpm : 1095
 Tolerance 1/min : + 5
 rack travel mm : 4.00
 Rated speed rpm : 1190
 Tolerance 1/min : + 15
 rack travel mm : 0.75
 Tolerance mm : + 0.75
 Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 60.0
tolerance degree : + - 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 4.50
Tolerance mm : + - 0.10

Rated speed rpm : 200

CRT mm min. : > 6.30

Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 550
rack travel mm : 14.80
Tolerance mm : + - 0.05

Rated speed rpm : 1050
rack travel mm : 14.80
Tolerance mm : + - 0.10

Rated speed rpm : 700
rack travel mm : 14.80
Tolerance mm : + - 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 400
Pressure hPa : 1000
rack travel mm : 14.80
Tolerance mm : + - 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 400
rack travel mm : 10.80
Tolerance mm : + - 0.15

Rated speed rpm : 400

Pressure hPa : 400
rack travel mm : 12.90
Tolerance mm : + - 0.20

Pressure hPa : 600
rack travel mm : 14.15
Tolerance mm : + - 0.20

START CUT-OUT

Rated speed rpm : < 220
Check speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : 1000
Rated speed rpm : 1050
Del. quantity cm³/1000 strokes : 229.0
Tolerance cm³/1000 strokes : + - 3.0
Check tolerance cm³/1000S. : + - 6.0
Spred
Tolerance cm³/1000 strokes : 8.0
Check tolerance cm³/1000S. : 12.0

Aneroid pressure hPa : -
Rated speed rpm : 500
Del. quantity cm³/1000 strokes : 134.0
Tolerance cm³/1000 strokes : + - 1.0
Check tolerance cm³/1000S. : + - 4.0
Spred
Tolerance cm³/1000 strokes : 8.0
Check tolerance cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 13.80
Rated speed rpm : 1095
Tolerance 1/min : + - 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity cm³/1000 strokes : 210.0
Tolerance cm³/1000 strokes : + - 15.0
Check tolerance cm³/1000S. : + - 19.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 6.30
Tolerance mm : + - 0.30
Del. quantity cm³/1000 strokes : 13.0
Tolerance cm³/1000 strokes : + - 3.0
Check tolerance cm³/1000S. : + - 6.0
Speed
Tolerance cm³/1000 strokes : 6.0
Check tolerance cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 02.06.95
Test oil : ISO 4113

Combination No. : 0 402 646 757

Injection pump
Pump designation : PE6P120A320LS7836
: -10
EP type number : 0 412 626 854

Governor
Governor design. : RQ300/1050PA1030-25
Governor no. : 0 421 801 771

Cust. part No. : 0260743002

Customer-spec. information

Customer : MB-NFZ
Motor : OM401 LA
Power KW : 200.0

TEST BENCH REQUIREMENTS

Inlet Line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Tolerance l/h : + 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 5.55
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 20.50
Tolerance mm : + 0.50

Firing order : 6- 3- 5- 2- 4-
: 1-

Phasing : 0-60-120-180-240

: -300-360

Tolerance : + 0.30

Check tolerance °NW : + 0.75

Start of delivery mark

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 13.00
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 190.0

Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 4.0
 Spred
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0
 Rated speed rpm : 300
 Rack travel in mm : 5.80
 Tolerance mm : + 0.30
 Del. quantity
 cm³/1000 strokes : 19.0
 Tolerance
 cm³/1000 strokes : + 3.0
 Check tolerance
 cm³/1000S. : + 6.0
 Spred
 Tolerance
 cm³/1000 strokes : 6.0
 Check tolerance
 cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 600
 Rack travel in mm : 20.00
 Tolerance mm : + 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
 Aneroid pressure
 hPa : 800
 Del. quantity
 cm³/1000 strokes : 190.0
 Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 4.0
 Spred
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

RATED SPEED

| | | |
|-------------------------------|---|--------|
| control lever position degree | : | 95.0 |
| tolerance degree | : | + 4.0 |
| rack travel mm | : | 12.00 |
| Rated speed rpm | : | 1098 |
| Tolerance 1/min | : | + 8 |
| rack travel mm | : | 4.00 |
| Rated speed rpm | : | 1185 |
| Tolerance 1/min | : | + 15 |
| rack travel mm | : | 0.75 |
| Tolerance mm | : | + 0.75 |
| Rated speed rpm | : | 1300 |

LOW IDLE

| | | |
|-------------------------------|---|-------|
| control lever position degree | : | 72.0 |
| tolerance degree | : | + 4.0 |

Testing:

| | | |
|-----------------|---|--------|
| Rated speed rpm | : | 300 |
| rack travel mm | : | 5.80 |
| Tolerance mm | : | + 0.10 |
| rack travel mm | : | 2.00 |
| Rated speed rpm | : | 415 |
| Tolerance 1/min | : | + 20 |
| Rated speed rpm | : | 200 |
| CRT mm min. | : | > 7.60 |

TORQUE CONTROL

| | | |
|-----------------|---|--------|
| Rated speed rpm | : | 1050 |
| rack travel mm | : | 13.00 |
| Tolerance mm | : | + 0.05 |
| Rated speed rpm | : | 550 |
| rack travel mm | : | 13.00 |
| Tolerance mm | : | + 0.10 |

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 400
Pressure hPa : 800
rack travel mm : 13.00
Tolerance mm : + 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 400
rack travel mm : 10.90
Tolerance mm : + 0.15

Rated speed rpm : 400

Pressure hPa : 200
rack travel mm : 11.40
Tolerance mm : + 0.20

Pressure hPa : 350
rack travel mm : 12.25
Tolerance mm : + 0.20

START CUT-OUT

Rated speed rpm : < 220
Check speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 800
Rated speed rpm : 550
Del. quantity
cm3/1000 strokes : 189.0
Tolerance
cm3/1000 strokes : + 3.0
Check tolerance
cm3/1000S. : + 6.0
Spread
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 132.0
Tolerance
cm3/1000 strokes : + 1.0
Check tolerance
cm3/1000S. : + 4.0
Spread
Tolerance
cm3/1000 strokes : 8.0

Check tolerance
cm3/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 12.00
Rated speed rpm : 1098
Tolerance 1/min : + 8

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm3/1000 strokes : 210.0
Tolerance
cm3/1000 strokes : + 15.0
Check tolerance
cm3/1000S. : + 19.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 5.80
Tolerance mm : + 0.30
Del. quantity
cm3/1000 strokes : 19.0
Tolerance
cm3/1000 strokes : + 3.0
Check tolerance
cm3/1000S. : + 6.0
Spread
Tolerance
cm3/1000 strokes : 6.0
Check tolerance
cm3/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 01.06.95
Test oil : ISO 4113

Combination No. : 0 402 646 758

Injection pump
Pump designation : PE6P120A320LS7834
: -10
EP type number : 0 412 626 853

Governor
Governor design. : RQ300/1050PA1030-24
Governor no. : 0 421 801 770

Cust. part No. : 0260743302

Customer-spec. information

Customer : MB-NFZ
Motor : OM401 LA
Power KW : 213.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Tolerance l/h : + 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 5.25
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 20.50
Tolerance mm : + 0.50

Firing order : 6- 3- 5- 2- 4-
: 1

Phasing : 0-60-120-180-240
: -300

Tolerance : + 0.30
Check
tolerance °NW : + 0.50

Start of delivery mark

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 14.20
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 202.0

Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 4.0
 Spred
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0
 Rated speed rpm : 300
 Rack travel in mm : 7.00
 Tolerance mm : + 0.30
 Del. quantity
 cm³/1000 strokes : 19.0
 Tolerance
 cm³/1000 strokes : + 3.0
 Check tolerance
 cm³/1000S. : + 6.0
 Spred
 Tolerance
 cm³/1000 strokes : 6.0
 Check tolerance
 cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
 guide sleeve
 travel mm : 1.78
 Tolerance mm : + 0.10
 Rated speed rpm : 1104
 guide sleeve
 travel mm : 6.69
 Tolerance mm : + 0.10
 Rated speed rpm : 1050
 guide sleeve
 travel mm : 6.35
 Tolerance mm : + 0.10
 Rated speed rpm : 818
 guide sleeve
 travel mm : 6.09
 Tolerance mm : + 0.10
 Rated speed rpm : 410
 guide sleeve
 travel mm : 4.39
 Tolerance mm : + 0.10

Rated speed rpm : 510
 guide sleeve
 travel mm : 6.00
 Tolerance mm : + 0.10
 Rated speed rpm : 1270
 guide sleeve
 travel mm : 11.50
 Tolerance mm : + 0.50
 Rated speed rpm : 889
 guide sleeve
 travel mm : 6.26
 Tolerance mm : + 0.10

GUIDE SLEEVE POSITION

Rated speed rpm : 600
 Rack travel in mm : 20.00
 Tolerance mm : + 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
 Aneroid pressure
 hPa : 800
 Del. quantity
 cm³/1000 strokes : 202.0
 Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 4.0
 Spred
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

RATED SPEED

control lever
 position degree : 100.0
 tolerance degree : + 4.0
 rack travel mm : 13.20
 Rated speed rpm : 1098
 Tolerance 1/min : + 8
 rack travel mm : 4.00
 Rated speed rpm : 1195
 Tolerance 1/min : + 15
 rack travel mm : 0.75
 Tolerance mm : + 0.75

Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 73.0
tolerance degree : + - 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 5.70
Tolerance mm : + - 0.10

rack travel mm : 2.00
Rated speed rpm : 400
Tolerance 1/min : + - 20

Rated speed rpm : 200

CRT mm min. : > 7.90

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 14.20
Tolerance mm : + - 0.05

Rated speed rpm : 550
rack travel mm : 14.20
Tolerance mm : + - 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 400
Pressure hPa : 800
rack travel mm : 14.20
Tolerance mm : + - 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 400
rack travel mm : 10.60
Tolerance mm : + - 0.20

Rated speed rpm : 400

Pressure hPa : 200
rack travel mm : 11.65
Tolerance mm : + - 0.20

Pressure hPa : 350
rack travel mm : 13.10
Tolerance mm : + - 0.20

START CUT-OUT

Rated speed rpm : < 220
Check speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : 800
Rated speed rpm : 550
Del. quantity cm³/1000 strokes : 197.0
Tolerance cm³/1000 strokes : + - 3.0
Check tolerance cm³/1000S. : + - 6.0
Spread Tolerance cm³/1000 strokes : 8.0
Check tolerance cm³/1000S. : 12.0

Aneroid pressure hPa : -
Rated speed rpm : 500
Del. quantity cm³/1000 strokes : 127.0
Tolerance cm³/1000 strokes : + - 1.0
Check tolerance cm³/1000S. : + - 4.0
Spread Tolerance cm³/1000 strokes : 8.0
Check tolerance cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 13.20
Rated speed rpm : 1098
Tolerance 1/min : + - 8

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity cm³/1000 strokes : 210.0

Tolerance
cm³/1000 strokes : + 15.0
Check tolerance
cm³/1000S. : + 19.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 7.00
Tolerance mm : + 0.30
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 02.06.95
Test oil : ISO 4113

Combination No. : 0 402 646 759

Injection pump
Pump designation : PE6P120A320LS7836
: -10
EP type number : 0 412 626 854

Governor
Governor design. : RQV300...1050PA1033
: -19
Governor no. : 0 421 814 137

Cust. part No. : 0260743102

Customer-spec. information

Customer : MB-NFZ
Motor : OM401 LA
Power KW : 200.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Tolerance l/h : + 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 5.55
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 20.50
Tolerance mm : + 0.50

Firing order : 6- 3- 5- 2- 4-
: 1-

Phasing : 0-60-120-180-240
: -300-360

Tolerance : + 0.30
Check
tolerance °NW : + 0.75

Start of delivery mark

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 13.00
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 190.0

Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 4.0
 Spread
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0
 Rated speed rpm : 300
 Rack travel in mm : 5.80
 Tolerance mm : + 0.30
 Del. quantity
 cm³/1000 strokes : 19.0
 Tolerance
 cm³/1000 strokes : + 3.0
 Check tolerance
 cm³/1000S. : + 6.0
 Spread
 Tolerance
 cm³/1000 strokes : 6.0
 Check tolerance
 cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 1155
 Rack travel in mm : 12.00
 Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
 Aneroid pressure
 hPa : 800
 Del. quantity
 cm³/1000 strokes : 190.0
 Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 4.0
 Spread
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

RATED SPEED

| | | |
|-------------------------------|---|--------|
| control lever position degree | : | 120.0 |
| tolerance degree | : | + 4.0 |
| rack travel mm | : | 12.00 |
| Rated speed rpm | : | 1095 |
| Tolerance 1/min | : | + 5 |
| rack travel mm | : | 4.00 |
| Rated speed rpm | : | 1175 |
| Tolerance 1/min | : | + 15 |
| rack travel mm | : | 0.75 |
| Tolerance mm | : | + 0.75 |
| Rated speed rpm | : | 1300 |

LOW IDLE

| | | |
|-------------------------------|---|-------|
| control lever position degree | : | 66.0 |
| tolerance degree | : | + 4.0 |

Testing:

| | | |
|-----------------|---|--------|
| Rated speed rpm | : | 300 |
| rack travel mm | : | 5.80 |
| Tolerance mm | : | + 0.10 |
| Rated speed rpm | : | 200 |
| CRT mm min. | : | > 7.60 |
| Rated speed rpm | : | 350 |

TORQUE CONTROL

| | | |
|-----------------|---|--------|
| Rated speed rpm | : | 1050 |
| rack travel mm | : | 13.00 |
| Tolerance mm | : | + 0.05 |
| Rated speed rpm | : | 550 |
| rack travel mm | : | 13.00 |
| Tolerance mm | : | + 0.10 |

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 400

Pressure hPa : 800
rack travel mm : 13.00
Tolerance mm : + - 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 400
rack travel mm : 10.90
Tolerance mm : + - 0.15

Rated speed rpm : 400

Pressure hPa : 200
rack travel mm : 11.40
Tolerance mm : + - 0.20

Pressure hPa : 350
rack travel mm : 12.25
Tolerance mm : + - 0.20

START CUT-OUT

Rated speed rpm : < 220
Check speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 800
Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 189.0
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 6.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 132.0
Tolerance
cm³/1000 strokes : + - 1.0
Check tolerance
cm³/1000S. : + - 4.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 12.00
Rated speed rpm : 1095
Tolerance 1/min : + - 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 210.0
Tolerance
cm³/1000 strokes : + - 15.0
Check tolerance
cm³/1000S. : + - 19.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 5.80
Tolerance mm : + - 0.30
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 6.0
Spread
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 12.06.95
Test oil : ISO 4113

Combination No. : 0 402 646 760

Injection pump
Pump designation : PE6P120A320LS7834
: -10
EP type number : 0 412 626 853

Governor
Governer design. : RQ300/1050PA1030-23
Governer no. : 0 421 801 769

Cust. part No. : 0260743502

Customer-spec. information

Customer : MB-NFZ
Motor : OM401 LA
Power KW : 230.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Tolerance l/h : + 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x Length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 5.25
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 20.50
Tolerance mm : + 0.50

Firing order : 6- 3- 5- 2- 4-
: 1-

Phasing : 0-60-120-180-240
: -300-360

Tolerance : + 0.30
Check
tolerance °NW : + 0.75

Start of delivery mark

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 550

Rack travel in mm : 14.80
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 230.0

Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 4.0
 Spred
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0
 Rated speed rpm : 300
 Rack travel in mm : 6.30
 Tolerance mm : + 0.30
 Del. quantity
 cm³/1000 strokes : 13.0
 Tolerance
 cm³/1000 strokes : + 3.0
 Check tolerance
 cm³/1000S. : + 6.0
 Spred
 Tolerance
 cm³/1000 strokes : 6.0
 Check tolerance
 cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
 guide sleeve
 travel mm : 1.78
 Tolerance mm : + 0.10
 Rated speed rpm : 1104
 guide sleeve
 travel mm : 6.51
 Tolerance mm : + 0.10
 Rated speed rpm : 1050
 guide sleeve
 travel mm : 6.00
 Tolerance mm : + 0.10
 Rated speed rpm : 421
 guide sleeve
 travel mm : 4.00
 Tolerance mm : + 0.10
 Rated speed rpm : 550
 guide sleeve
 travel mm : 6.00
 Tolerance mm : + 0.10

Rated speed rpm : 1270
 guide sleeve
 travel mm : 11.50
 Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 600
 Rack travel in mm : 20.00
 Tolerance mm : + 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 230.0
 Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 4.0
 Spred
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

RATED SPEED

control lever
 position degree : 100.0
 tolerance degree : + 4.0
 rack travel mm : 13.80
 Rated speed rpm : 1098
 Tolerance 1/min : + 8
 rack travel mm : 4.00
 Rated speed rpm : 1195
 Tolerance 1/min : + 15
 rack travel mm : 0.75
 Tolerance mm : + 0.75
 Rated speed rpm : 1300

LOW IDLE

control lever
 position degree : 74.0
 tolerance degree : + 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 5.20
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 405
Tolerance 1/min : + 20

Rated speed rpm : 200

CRT mm min. : > 7.00

TORQUE CONTROL

Rated speed rpm : 550
rack travel mm : 14.80
Tolerance mm : + 0.05

Rated speed rpm : 1050
rack travel mm : 14.80
Tolerance mm : + 0.10

Rated speed rpm : 700
rack travel mm : 14.80
Tolerance mm : + 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 400
Pressure hPa : 1000
rack travel mm : 14.80
Tolerance mm : + 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 400
rack travel mm : 10.80
Tolerance mm : + 0.15

Rated speed rpm : 400

Pressure hPa : 400
rack travel mm : 12.90
Tolerance mm : + 0.20

Pressure hPa : 600
rack travel mm : 14.15
Tolerance mm : + 0.20

START CUT-OUT

Rated speed rpm : < 220
Check speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : 1000
Rated speed rpm : 1050
Del. quantity cm³/1000 strokes : 229.0
Tolerance cm³/1000 strokes : + 3.0
Check tolerance cm³/1000S. : + 6.0
Spread
Tolerance cm³/1000 strokes : 8.0
Check tolerance cm³/1000S. : 12.0

Aneroid pressure hPa : -
Rated speed rpm : 500
Del. quantity cm³/1000 strokes : 134.0
Tolerance cm³/1000 strokes : + 1.0
Check tolerance cm³/1000S. : + 4.0
Spread
Tolerance cm³/1000 strokes : 8.0
Check tolerance cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 13.80
Rated speed rpm : 1098
Tolerance 1/min : + 8

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity cm³/1000 strokes : 210.0
Tolerance cm³/1000 strokes : + 15.0
Check tolerance cm³/1000S. : + 19.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 6.30
Tolerance mm : + 0.30
Del. quantity cm³/1000 strokes : 13.0
Tolerance cm³/1000 strokes : + 3.0
Check tolerance cm³/1000S. : + 6.0
Speed
Tolerance cm³/1000 strokes : 6.0
Check tolerance cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 12.06.95
Test oil : ISO 4113

Combination No. : 0 402 646 761

Injection pump
Pump designation : PE6P120A320LS7834
: -10
EP type number : 0 412 626 853

Governor
Governor design. : RQ300/1050PA1031-19
Governor no. : 0 421 801 768

Cust. part No. : 0260743802

Customer-spec. information

Customer : MB-NFZ
Motor : OM401 LA
Power KW : 230.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Tolerance l/h : + 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 5.25
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 20.50
Tolerance mm : + 0.50

Firing order : 6- 3- 5- 2- 4-
: 1-

Phasing : 0-60-120-180-240
: -300-360

Tolerance : + 0.30
Check
tolerance °NW : + 0.75

Start of delivery mark

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 550

Rack travel in mm : 14.80
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 230.0

Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 4.0
 Spred
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0
 Rated speed rpm : 300
 Rack travel in mm : 6.30
 Tolerance mm : + 0.30
 Del. quantity
 cm³/1000 strokes : 13.0
 Tolerance
 cm³/1000 strokes : + 3.0
 Check tolerance
 cm³/1000S. : + 6.0
 Spred
 Tolerance
 cm³/1000 strokes : 6.0
 Check tolerance
 cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
 guide sleeve
 travel mm : 1.78
 Tolerance mm : + 0.10
 Rated speed rpm : 1104
 guide sleeve
 travel mm : 6.51
 Tolerance mm : + 0.10
 Rated speed rpm : 1050
 guide sleeve
 travel mm : 6.00
 Tolerance mm : + 0.10
 Rated speed rpm : 379
 guide sleeve
 travel mm : 3.11
 Tolerance mm : + 0.10
 Rated speed rpm : 550
 guide sleeve
 travel mm : 6.00
 Tolerance mm : + 0.10

Rated speed rpm : 1270
 guide sleeve
 travel mm : 11.50
 Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 600
 Rack travel in mm : 20.00
 Tolerance mm : + 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 230.0
 Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 4.0
 Spred
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

RATED SPEED

control lever
 position degree : 99.0
 tolerance degree : + 4.0
 rack travel mm : 13.80
 Rated speed rpm : 1098
 Tolerance 1/min : + 8
 rack travel mm : 4.00
 Rated speed rpm : 1195
 Tolerance 1/min : + 15
 rack travel mm : 0.75
 Tolerance mm : + 0.75
 Rated speed rpm : 1300

LOW IDLE

control lever
 position degree : 69.0
 tolerance degree : + 4.0

Testing:

| | | |
|-----------------|---|--------|
| Rated speed rpm | : | 300 |
| rack travel mm | : | 3.50 |
| Tolerance mm | : | + 0.10 |
| | | |
| rack travel mm | : | 2.00 |
| Rated speed rpm | : | 350 |
| Tolerance 1/min | : | + 20 |
| | | |
| Rated speed rpm | : | 200 |
| CRT mm min. | : | > 5.30 |

TORQUE CONTROL

| | | |
|-----------------|---|--------|
| Rated speed rpm | : | 550 |
| rack travel mm | : | 14.80 |
| Tolerance mm | : | + 0.05 |
| | | |
| Rated speed rpm | : | 1050 |
| rack travel mm | : | 14.80 |
| Tolerance mm | : | + 0.10 |
| | | |
| Rated speed rpm | : | 700 |
| rack travel mm | : | 14.80 |
| Tolerance mm | : | + 0.05 |

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

| | | |
|-----------------|---|--------|
| Rated speed rpm | : | 400 |
| Pressure hPa | : | 1000 |
| rack travel mm | : | 14.80 |
| Tolerance mm | : | + 0.05 |

MEASUREMENT

| | | |
|-----------------|---|--------|
| Pressure hPa | : | - |
| Rated speed rpm | : | 400 |
| rack travel mm | : | 10.80 |
| Tolerance mm | : | + 0.15 |

Rated speed rpm : 400

| | | |
|----------------|---|--------|
| Pressure hPa | : | 400 |
| rack travel mm | : | 12.90 |
| Tolerance mm | : | + 0.20 |

| | | |
|----------------|---|--------|
| Pressure hPa | : | 600 |
| rack travel mm | : | 14.15 |
| Tolerance mm | : | + 0.20 |

START CUT-OUT

| | | |
|-------------------|---|-------|
| Rated speed rpm | : | < 220 |
| Check speed 1/min | : | < 240 |

FUEL DELIVERY CHARACTERISTICS

| | | |
|-------------------------------|---|-------|
| Aneroid pressure | | |
| hPa | : | 1000 |
| Rated speed rpm | : | 1050 |
| Del. quantity | | |
| cm ³ /1000 strokes | : | 229.0 |
| Tolerance | | |
| cm ³ /1000 strokes | : | + 3.0 |
| Check tolerance | | |
| cm ³ /1000S. | : | + 6.0 |
| Spread | | |
| Tolerance | | |
| cm ³ /1000 strokes | : | 8.0 |
| Check tolerance | | |
| cm ³ /1000S. | : | 12.0 |

| | | |
|-------------------------------|---|-------|
| Aneroid pressure | | |
| hPa | : | - |
| Rated speed rpm | : | 500 |
| Del. quantity | | |
| cm ³ /1000 strokes | : | 134.0 |
| Tolerance | | |
| cm ³ /1000 strokes | : | + 1.0 |
| Check tolerance | | |
| cm ³ /1000S. | : | + 4.0 |
| Spread | | |
| Tolerance | | |
| cm ³ /1000 strokes | : | 8.0 |
| Check tolerance | | |
| cm ³ /1000S. | : | 12.0 |

BREAKAWAY

| | | |
|-------------------|---|-------|
| Rack travel in mm | : | 13.80 |
| Rated speed rpm | : | 1098 |
| Tolerance 1/min | : | + 8 |

STARTING FUEL DELIVERY

| | | |
|-------------------------------|---|--------|
| Rated speed rpm | : | 100 |
| Del. quantity | | |
| cm ³ /1000 strokes | : | 210.0 |
| Tolerance | | |
| cm ³ /1000 strokes | : | + 15.0 |
| Check tolerance | | |
| cm ³ /1000S. | : | + 19.0 |

LOW IDLE

Rated speed rpm : 300
rack travel mm : 6.30
Tolerance mm : + - 0.30
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 6.0
Spred
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 12.06.95
Test oil : ISO 4113

Combination No. : 0 402 646 762

Injection pump
Pump designation : PE6P120A320LS7834
: -10
EP type number : 0 412 625 853

Governor
Governor design. : RQV300...1050PA1033
: -18
Governor no. : 0 421 814 136

Cust. part No. : 0260743602

Customer-spec. information

Customer : MB-NFZ
Motor : OM401 LA
Power KW : 230.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Tolerance l/h : + 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 075
Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 5.25
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 20.50
Tolerance mm : + 0.50

Firing order : 6- 3- 5- 2- 4-
: 1-

Phasing : 0-60-120-180-240
: -300-360

Tolerance : + 0.30

Check
tolerance °NW : + 0.75

Start of delivery mark

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 550

Rack travel in mm : 14.80
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 230.0

Tolerance
 cm³/1000 strokes : + 1.0

 Check tolerance
 cm³/1000S. : + 4.0

 Spred
 Tolerance
 cm³/1000 strokes : 5.0

 Check tolerance
 cm³/1000S. : 9.0

 Rated speed rpm : 300

 Rack travel in mm : 6.30
 Tolerance mm : + 0.30
 Del. quantity
 cm³/1000 strokes : 13.0
 Tolerance
 cm³/1000 strokes : + 3.0
 Check tolerance
 cm³/1000S. : + 6.0
 Spred
 Tolerance
 cm³/1000 strokes : 6.0
 Check tolerance
 cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
 guide sleeve
 travel mm : 1.29
 Tolerance mm : + 0.20

 Rated speed rpm : 1108
 guide sleeve
 travel mm : 8.53
 Tolerance mm : + 0.15

 Rated speed rpm : 558
 guide sleeve
 travel mm : 4.53
 Tolerance mm : + 0.25

 Rated speed rpm : 608
 guide sleeve
 travel mm : 5.03
 Tolerance mm : + 0.25

 Rated speed rpm : 820
 guide sleeve
 travel mm : 6.13
 Tolerance mm : + 0.25

Rated speed rpm : 1183
 guide sleeve
 travel mm : 10.00
 Tolerance mm : + 0.25

 Rated speed rpm : 1280
 guide sleeve
 travel mm : 11.50
 Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1145

 Rack travel in mm : 13.80
 Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 230.0
 Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 4.0
 Spred
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

RATED SPEED

control lever
 position degree : 121.0
 tolerance degree : + 4.0

 rack travel mm : 13.80
 Rated speed rpm : 1095
 Tolerance 1/min : + 5

 rack travel mm : 4.00
 Rated speed rpm : 1195
 Tolerance 1/min : + 15

 rack travel mm : 0.75
 Tolerance mm : + 0.75
 Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 66.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 5.20
Tolerance mm : + 0.10

Rated speed rpm : 200

CRT mm min. : > 7.00

Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 550
rack travel mm : 14.80
Tolerance mm : + 0.05

Rated speed rpm : 1050
rack travel mm : 14.80
Tolerance mm : + 0.10

Rated speed rpm : 700
rack travel mm : 14.80
Tolerance mm : + 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 400
Pressure hPa : 1000
rack travel mm : 14.80
Tolerance mm : + 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 400
rack travel mm : 10.80
Tolerance mm : + 0.15

Rated speed rpm : 400

Pressure hPa : 400
rack travel mm : 12.90
Tolerance mm : + 0.20

Pressure hPa : 600
rack travel mm : 14.15
Tolerance mm : + 0.20

START CUT-OUT

Rated speed rpm : < 220
Check
speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 229.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 134.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 13.80
Rated speed rpm : 1095
Tolerance 1/min : + 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 210.0
Tolerance
cm³/1000 strokes : + 15.0
Check tolerance
cm³/1000S. : + 19.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 6.30
Tolerance mm : + - 0.30
Del. quantity cm³/1000 strokes : 13.0
Tolerance cm³/1000 strokes : + - 3.0
Check tolerance cm³/1000S. : + - 6.0
Spred
Tolerance cm³/1000 strokes : 6.0
Check tolerance cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS**Note remarks**

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 12.06.95
Test oil : ISO 4113

Combination No. : 0 402 646 763

Injection pump
Pump designation : PE6P120A320LS7834
: -10
EP type number : 0 412 626 853

Governor
Governor design. : RQV300...1050PA1065
: -2
Governor no. : 0 421 814 135

Cust. part No. : 0260743702

Customer-spec. information

Customer : MB-NFZ
Motor : OM401 LA
Power KW : 230.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Tolerance l/h : + 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 5.25
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 20.50
Tolerance mm : + 0.50

Firing order : 6- 3- 5- 2- 4-
: 1

Phasing : 0-60-120-180-240
: -300

Tolerance
Check
tolerance °NW : + 0.75

Start of delivery mark

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 550

Rack travel in mm : 14.80
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 230.0

Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 4.0
 Spred
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0
 Rated speed rpm : 300
 Rack travel in mm : 6.30
 Tolerance mm : + 0.30
 Del. quantity
 cm³/1000 strokes : 13.0
 Tolerance
 cm³/1000 strokes : + 3.0
 Check tolerance
 cm³/1000S. : + 6.0
 Spred
 Tolerance
 cm³/1000 strokes : 6.0
 Check tolerance
 cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
 guide sleeve
 travel mm : 1.13
 Tolerance mm : + 0.25
 Rated speed rpm : 1108
 guide sleeve
 travel mm : 9.82
 Tolerance mm : + 0.25
 Rated speed rpm : 370
 guide sleeve
 travel mm : 2.00
 Tolerance mm : + 0.25
 Rated speed rpm : 420
 guide sleeve
 travel mm : 2.49
 Tolerance mm : + 0.25
 Rated speed rpm : 750
 guide sleeve
 travel mm : 4.87
 Tolerance mm : + 0.25

Rated speed rpm : 1310
 guide sleeve
 travel mm : 13.50
 Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1200
 Rack travel in mm : 13.80
 Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 230.0
 Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 4.0
 Spred
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

RATED SPEED

control lever
 position degree : 104.0
 tolerance degree : + 4.0
 rack travel mm : 13.80
 Rated speed rpm : 1095
 Tolerance 1/min : + 5
 rack travel mm : 4.00
 Rated speed rpm : 1195
 Tolerance 1/min : + 15
 rack travel mm : 0.75
 Tolerance mm : + 0.75
 Rated speed rpm : 1300

LOW IDLE

control lever
 position degree : 68.0
 tolerance degree : + 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 5.20
Tolerance mm : + - 0.10

Rated speed rpm : 200

CRT mm min. : > 8.10

Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 550
rack travel mm : 14.80
Tolerance mm : + - 0.05

Rated speed rpm : 1050
rack travel mm : 14.80
Tolerance mm : + - 0.10

Rated speed rpm : 700
rack travel mm : 14.80
Tolerance mm : + - 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 400
Pressure hPa : 1000
rack travel mm : 14.80
Tolerance mm : + - 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 400
rack travel mm : 10.80
Tolerance mm : + - 0.15

Rated speed rpm : 400

Pressure hPa : 400
rack travel mm : 12.90
Tolerance mm : + - 0.20

Pressure hPa : 600
rack travel mm : 14.15
Tolerance mm : + - 0.20

START CUT-OUT

Rated speed rpm : < 220

Check speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : 1000
Rated speed rpm : 1050
Del. quantity cm³/1000 strokes : 229.0
Tolerance cm³/1000 strokes : + - 3.0
Check tolerance cm³/1000S. : + - 6.0
Spread
Tolerance cm³/1000 strokes : 8.0
Check tolerance cm³/1000S. : 12.0

Aneroid pressure hPa : -
Rated speed rpm : 500
Del. quantity cm³/1000 strokes : 134.0
Tolerance cm³/1000 strokes : + - 1.0
Check tolerance cm³/1000S. : + - 4.0
Spread
Tolerance cm³/1000 strokes : 8.0
Check tolerance cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 13.80
Rated speed rpm : 1095
Tolerance 1/min : + - 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity cm³/1000 strokes : 210.0
Tolerance cm³/1000 strokes : + - 15.0
Check tolerance cm³/1000S. : + - 19.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 6.30
Tolerance mm : + - 0.30
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 6.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 12.06.95
Test oil : ISO 4113

Combination No. : 0 402 646 764

Injection pump
Pump designation : PE6P120A320LS7837-2
EP type number : 0 412 626 943

Governor
Governor design. : RQ300/1050PA972-13
Governor no. : 0 421 801 767

Cust. part No. : 0260742402

Customer-spec. information

Customer : MB-NFZ
Motor : OM441 LA
Power KW : 250.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 5.25
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 20.50
Tolerance mm : + 0.50

Firing order : 6- 3- 5- 2- 4-
: 1-

Phasing : 0-60-120-180-240
: -300-360

Tolerance
Check
tolerance °NW : + 0.75

Start of delivery mark

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 550

Rack travel in mm : 15.10
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 252.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000s. : + 4.0

Spreed
 Tolerance
 cm3/1000 strokes : 5.0

Check tolerance
 cm3/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 6.20
 Tolerance mm : + 0.30

Del. quantity
 cm3/1000 strokes : 19.0

Tolerance
 cm3/1000 strokes : + 3.0

Check tolerance
 cm3/1000S. : + 6.0

Spreed
 Tolerance
 cm3/1000 strokes : 6.0

Check tolerance
 cm3/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
 guide sleeve
 travel mm : 1.94
 Tolerance mm : + 0.10

Rated speed rpm : 1104
 guide sleeve
 travel mm : 6.34
 Tolerance mm : + 0.10

Rated speed rpm : 1050
 guide sleeve
 travel mm : 6.00
 Tolerance mm : + 0.10

Rated speed rpm : 441
 guide sleeve
 travel mm : 4.85
 Tolerance mm : + 0.10

Rated speed rpm : 570
 guide sleeve
 travel mm : 6.00
 Tolerance mm : + 0.10

Rated speed rpm : 1280
 guide sleeve
 travel mm : 11.50
 Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 600
 Rack travel in mm : 20.00
 Tolerance mm : + 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550
 Aneroid pressure
 hPa : 1100
 Del. quantity
 cm3/1000 strokes : 252.0

Tolerance
 cm3/1000 strokes : + 1.0

Check tolerance
 cm3/1000S. : + 4.0

Spreed
 Tolerance
 cm3/1000 strokes : 5.0

Check tolerance
 cm3/1000S. : 9.0

RATED SPEED

control lever
 position degree : 100.0
 tolerance degree : + 4.0

rack travel mm : 14.10
 Rated speed rpm : 1098
 Tolerance 1/min : + 8

rack travel mm : 4.00
 Rated speed rpm : 1200
 Tolerance 1/min : + 15

rack travel mm : 0.75
 Tolerance mm : + 0.75
 Rated speed rpm : 1300

LOW IDLE

control lever
 position degree : 74.0
 tolerance degree : + 4.0

Testing:

Rated speed rpm : 300
 rack travel mm : 5.50
 Tolerance mm : + 0.10

rack travel mm : 2.00
 Rated speed rpm : 400
 Tolerance 1/min : + - 20

 Rated speed rpm : 200

 CRT mm min. : > 8.50

TORQUE CONTROL

Rated speed rpm : 550
 rack travel mm : 15.10
 Tolerance mm : + - 0.05

 Rated speed rpm : 1050
 rack travel mm : 15.10
 Tolerance mm : + - 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 400
 Pressure hPa : 1100
 rack travel mm : 15.10
 Tolerance mm : + - 0.05

MEASUREMENT

Pressure hPa : -
 Rated speed rpm : 400
 rack travel mm : 9.15
 Tolerance mm : + - 0.20

 Rated speed rpm : 400

 Pressure hPa : 150
 rack travel mm : 10.05
 Tolerance mm : + - 0.20

 Pressure hPa : 550
 rack travel mm : 13.85
 Tolerance mm : + - 0.20

START CUT-OUT

Rated speed rpm : < 220
 Check speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : 1100
 Rated speed rpm : 1050
 Del. quantity cm3/1000 strokes : 240.0
 Tolerance cm3/1000 strokes : + - 3.0
 Check tolerance cm3/1000S. : + - 6.0
 Spread
 Tolerance cm3/1000 strokes : 8.0
 Check tolerance cm3/1000S. : 12.0

 Aneroid pressure hPa : -
 Rated speed rpm : 500
 Del. quantity cm3/1000 strokes : 135.0
 Tolerance cm3/1000 strokes : + - 1.0
 Check tolerance cm3/1000S. : + - 4.0
 Spread
 Tolerance cm3/1000 strokes : 8.0
 Check tolerance cm3/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 14.10
 Rated speed rpm : 1098
 Tolerance 1/min : + - 8

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity cm3/1000 strokes : 235.0
 Tolerance cm3/1000 strokes : + - 20.0
 Check tolerance cm3/1000S. : + - 24.0

LOW IDLE

Rated speed rpm : 300
 rack travel mm : 6.20
 Tolerance mm : + - 0.30
 Del. quantity cm3/1000 strokes : 19.0

Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0
Spred
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 12.06.95
Test oil : ISO 4113

Combination No. : 0 402 646 765

Injection pump
Pump designation : PE6P120A320LS7837

: -10
EP type number : 0 412 626 855

Governor
Governor design. : RQV300...1050PA797

: -43
Governor no. : 0 421 814 134

Cust. part No. : 0260742502

Customer-spec. information

Customer : MB-NFZ
Motor : OM441 LA
Power KW : 250.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Overflow quantity
min. l/h : 110
Tolerance l/h : + 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5

Tolerance bar : + 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 5.25
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 20.50
Tolerance mm : + 0.50

Firing order : 6- 3- 5- 2- 4-
: 1-

Phasing : 0-60-120-180-240
: -300-360

Tolerance : + 0.30

Check tolerance °NW : + 0.75

Start of delivery mark

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 550

Rack travel in mm : 15.10
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 252.0

Tolerance cm³/1000 strokes : + 1.0
 Check tolerance cm³/1000S. : + 4.0
 Spread
 Tolerance cm³/1000 strokes : 5.0
 Check tolerance cm³/1000S. : 9.0
 Rated speed rpm : 300
 Rack travel in mm : 6.20
 Tolerance mm : + 0.30
 Del. quantity cm³/1000 strokes : 19.0
 Tolerance cm³/1000 strokes : + 3.0
 Check tolerance cm³/1000S. : + 6.0
 Spread
 Tolerance cm³/1000 strokes : 6.0
 Check tolerance cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
 guide sleeve
 travel mm : 1.29
 Tolerance mm : + 0.20
 Rated speed rpm : 1108
 guide sleeve
 travel mm : 8.54
 Tolerance mm : + 0.15
 Rated speed rpm : 558
 guide sleeve
 travel mm : 4.53
 Tolerance mm : + 0.25
 Rated speed rpm : 608
 guide sleeve
 travel mm : 5.03
 Tolerance mm : + 0.25
 Rated speed rpm : 820
 guide sleeve
 travel mm : 6.13

Tolerance mm : + 0.25
 Rated speed rpm : 1183
 guide sleeve
 travel mm : 10.00
 Tolerance mm : + 0.25
 Rated speed rpm : 1280
 guide sleeve
 travel mm : 11.50
 Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1140
 Rack travel in mm : 14.10
 Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550
 Aneroid pressure hPa : 1100
 Del. quantity cm³/1000 strokes : 252.0
 Tolerance cm³/1000 strokes : + 1.0
 Check tolerance cm³/1000S. : + 4.0
 Spread
 Tolerance cm³/1000 strokes : 5.0
 Check tolerance cm³/1000S. : 9.0

RATED SPEED

control lever
 position degree : 122.0
 tolerance degree : + 4.0
 rack travel mm : 14.10
 Rated speed rpm : 1095
 Tolerance 1/min : + 5
 rack travel mm : 4.00
 Rated speed rpm : 1190
 Tolerance 1/min : + 15
 rack travel mm : 0.75
 Tolerance mm : + 0.75
 Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 85.0
tolerance degree : + - 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 5.50
Tolerance mm : + - 0.10

Rated speed rpm : 200
CRT mm min. : > 8.60
Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 550
rack travel mm : 15.10
Tolerance mm : + - 0.05

Rated speed rpm : 1050
rack travel mm : 15.10
Tolerance mm : + - 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 400
Pressure hPa : 1100
rack travel mm : 15.10
Tolerance mm : + - 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 400
rack travel mm : 9.15
Tolerance mm : + - 0.20

Rated speed rpm : 400

Pressure hPa : 150
rack travel mm : 10.05
Tolerance mm : + - 0.20

Pressure hPa : 550
rack travel mm : 13.85
Tolerance mm : + - 0.20

START CUT-OUT

Rated speed rpm : < 220
Check speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : 1100
Rated speed rpm : 1050
Del. quantity cm³/1000 strokes : 240.0
Tolerance cm³/1000 strokes : + - 3.0
Check tolerance cm³/1000S. : + - 6.0
Spread Tolerance cm³/1000 strokes : 8.0
Check tolerance cm³/1000S. : 12.0

Aneroid pressure hPa : -
Rated speed rpm : 500
Del. quantity cm³/1000 strokes : 135.0
Tolerance cm³/1000 strokes : + - 1.0
Check tolerance cm³/1000S. : + - 4.0
Spread Tolerance cm³/1000 strokes : 8.0
Check tolerance cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 14.10
Rated speed rpm : 1095
Tolerance 1/min : + - 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity cm³/1000 strokes : 235.0
Tolerance cm³/1000 strokes : + - 20.0
Check tolerance cm³/1000S. : + - 24.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 6.20
Tolerance mm : + - 0.30
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 6.0
Spred
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 12.06.95
Test oil : ISO 4113

Combination No. : 0 402 646 766

Injection pump
Pump designation : PE6P120A320LS7837
: -10
EP type number : 0 412 626 855

Governor
Governor design. : RQ300/950PA993-11
Governor no. : 0 421 801 766

Cust. part No. : 0260742302

Customer-spec. information

Customer : MB-NFZ
Motor : OM441 LA
Power KW : 250.0

TEST BENCH REQUIREMENTS

Inlet Line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Overflow quantity
min. l/h : 110
Tolerance l/h : + 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 075
Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 5.25
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 20.50
Tolerance mm : + 0.50

Firing order : 6- 3- 5- 2- 4-
: 1-

Phasing : 0-60-120-180-240
: -300-360

Tolerance : + 0.30
Check
tolerance °NW : + 0.75

Start of delivery mark

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 550

Rack travel in mm : 15.10
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 252.0

Tolerance
 cm³/1000 strokes : + 1.0

 Check tolerance
 cm³/1000S. : + 4.0

 Spred
 Tolerance
 cm³/1000 strokes : 5.0

 Check tolerance
 cm³/1000S. : 9.0

 Rated speed rpm : 300

 Rack travel in mm : 6.20
 Tolerance mm : + 0.30
 Del. quantity
 cm³/1000 strokes : 19.0

 Tolerance
 cm³/1000 strokes : + 3.0

 Check tolerance
 cm³/1000S. : + 6.0

 Spred
 Tolerance
 cm³/1000 strokes : 6.0

 Check tolerance
 cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
 guide sleeve
 travel mm : 2.28
 Tolerance mm : + 0.10

 Rated speed rpm : 1005
 guide sleeve
 travel mm : 6.34
 Tolerance mm : + 0.10

 Rated speed rpm : 950
 guide sleeve
 travel mm : 6.00
 Tolerance mm : + 0.10

 Rated speed rpm : 340
 guide sleeve
 travel mm : 3.46
 Tolerance mm : + 0.10

 Rated speed rpm : 580
 guide sleeve
 travel mm : 6.00
 Tolerance mm : + 0.10

Rated speed rpm : 1190
 guide sleeve
 travel mm : 11.50
 Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 600
 Rack travel in mm : 20.00
 Tolerance mm : + 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550
 Aneroid pressure
 hPa : 1100
 Del. quantity
 cm³/1000 strokes : 252.0

 Tolerance
 cm³/1000 strokes : + 1.0

 Check tolerance
 cm³/1000S. : + 4.0

 Spred
 Tolerance
 cm³/1000 strokes : 5.0

 Check tolerance
 cm³/1000S. : 9.0

RATED SPEED

control lever
 position degree : 100.0
 tolerance degree : + 4.0

 rack travel mm : 14.10
 Rated speed rpm : 998
 Tolerance 1/min : + 8

 rack travel mm : 4.00
 Rated speed rpm : 1105
 Tolerance 1/min : + 15

 rack travel mm : 0.75
 Tolerance mm : + 0.75
 Rated speed rpm : 1300

LOW IDLE

control lever
 position degree : 72.0
 tolerance degree : + 4.0

Testing:

| | | |
|-----------------|---|----------|
| Rated speed rpm | : | 300 |
| rack travel mm | : | 3.50 |
| Tolerance mm | : | + - 0.10 |
| rack travel mm | : | 2.00 |
| Rated speed rpm | : | 340 |
| Tolerance 1/min | : | + - 20 |
| Rated speed rpm | : | 200 |
| CRT mm min. | : | > 6.50 |

TORQUE CONTROL

| | | |
|-----------------|---|----------|
| Rated speed rpm | : | 550 |
| rack travel mm | : | 15.10 |
| Tolerance mm | : | + - 0.05 |
| Rated speed rpm | : | 950 |
| rack travel mm | : | 15.10 |
| Tolerance mm | : | + - 0.10 |

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

| | | |
|-----------------|---|----------|
| Rated speed rpm | : | 400 |
| Pressure hPa | : | 1100 |
| rack travel mm | : | 15.10 |
| Tolerance mm | : | + - 0.05 |

MEASUREMENT

| | | |
|-----------------|---|----------|
| Pressure hPa | : | - |
| Rated speed rpm | : | 400 |
| rack travel mm | : | 9.15 |
| Tolerance mm | : | + - 0.20 |
| Rated speed rpm | : | 400 |
| Pressure hPa | : | 150 |
| rack travel mm | : | 10.05 |
| Tolerance mm | : | + - 0.20 |
| Pressure hPa | : | 550 |
| rack travel mm | : | 13.85 |
| Tolerance mm | : | + - 0.20 |

START CUT-OUT

| | | |
|----------------------|---|-------|
| Rated speed rpm | : | < 220 |
| Check speed 1/min | : | < 240 |

FUEL DELIVERY CHARACTERISTICS

| | | | |
|-------------------------------|-------------------------------|-----|---------|
| Aneroid pressure | hPa | : | 1100 |
| Rated speed rpm | : | 950 | |
| Del. quantity | cm ³ /1000 strokes | : | 240.0 |
| Tolerance | cm ³ /1000 strokes | : | + - 3.0 |
| Check tolerance | cm ³ /1000S. | : | + - 6.0 |
| Spread | Tolerance | : | |
| cm ³ /1000 strokes | cm ³ /1000 strokes | : | 8.0 |
| Check tolerance | cm ³ /1000S. | : | 12.0 |
| Aneroid pressure | hPa | : | - |
| Rated speed rpm | : | 500 | |
| Del. quantity | cm ³ /1000 strokes | : | 135.0 |
| Tolerance | cm ³ /1000 strokes | : | + - 1.0 |
| Check tolerance | cm ³ /1000S. | : | + - 4.0 |

BREAKAWAY

| | | |
|-------------------|---|-------|
| Rack travel in mm | : | 14.10 |
| Rated speed rpm | : | 998 |
| Tolerance 1/min | : | + - 8 |

STARTING FUEL DELIVERY

| | | | |
|-----------------|-------------------------------|-----|----------|
| Rated speed rpm | : | 100 | |
| Del. quantity | cm ³ /1000 strokes | : | 235.0 |
| Tolerance | cm ³ /1000 strokes | : | + - 20.0 |
| Check tolerance | cm ³ /1000S. | : | + - 24.0 |

LOW IDLE

| | | | |
|-----------------|-------------------------------|----------|------|
| Rated speed rpm | : | 300 | |
| rack travel mm | : | 6.20 | |
| Tolerance mm | : | + - 0.30 | |
| Del. quantity | cm ³ /1000 strokes | : | 19.0 |

Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 6.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 12.06.95
Test oil : ISO 4113

Combination No. : 0 402 646 767

Injection pump
Pump designation : PE6P120A320LS7837
: -10
EP type number : 0 412 626 855

Governor
Governor design. : RQV300...950PA797
: -42
Governor no. : 0 421 814 133

Cust. part No. : 0260741502

Customer-spec. information

Customer : MB-NFZ
Motor : OM441 LA
Power KW : 250.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 5.25
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 20.50
Tolerance mm : + 0.50

Firing order : 6- 3- 5- 2- 4-
: 1-

Phasing : 0-60-120-180-240
: -300-360

Tolerance : + 0.30
Check
tolerance *NW : + 0.75

Start of delivery mark

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 550

Rack travel in mm : 15.10
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 252.0

Tolerance
cm³/1000 strokes : + 1.0

| | |
|---|----------|
| Check tolerance cm ³ /1000S. | : + 4.0 |
| Spred Tolerance cm ³ /1000 strokes | 5.0 |
| Check tolerance cm ³ /1000S. | : 9.0 |
| Rated speed rpm | : 300 |
| Rack travel in mm | : 6.20 |
| Tolerance mm | : + 0.30 |
| Del. quantity cm ³ /1000 strokes | : 19.0 |
| Tolerance cm ³ /1000 strokes | : + 3.0 |
| Check tolerance cm ³ /1000S. | : + 6.0 |
| Spred Tolerance cm ³ /1000 strokes | 6.0 |
| Check tolerance cm ³ /1000S. | : 10.0 |

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

| | |
|---------------------------|----------|
| Rated speed rpm | : 300 |
| guide sleeve travel mm | : 1.29 |
| Tolerance mm | : + 0.20 |
| Rated speed rpm | : 1009 |
| guide sleeve travel mm | : 8.55 |
| Tolerance mm | : + 0.15 |
| Rated speed rpm | : 567 |
| guide sleeve travel mm | : 4.66 |
| Tolerance mm | : + 0.25 |
| Rated speed rpm | : 617 |
| guide sleeve travel mm | : 5.23 |
| Tolerance mm | : + 0.25 |
| Rated speed rpm | : 780 |
| guide sleeve travel mm | : 6.31 |
| Tolerance mm | : + 0.25 |
| Rated speed rpm | : 1092 |

| | |
|---------------------------|----------|
| guide sleeve travel mm | : 10.00 |
| Tolerance mm | : + 0.25 |
| Rated speed rpm | : 1190 |
| guide sleeve travel mm | : 11.50 |
| Tolerance mm | : + 0.50 |

GUIDE SLEEVE POSITION

| | |
|-------------------|----------|
| Rated speed rpm | : 1040 |
| Rack travel in mm | : 14.10 |
| Tolerance mm | : + 1.30 |

FULL LOAD DELIVERY AT FULL LOAD STOP

| | |
|---|---------|
| Rated speed rpm | : 550 |
| Aneroid pressure hPa | : 1100 |
| Del. quantity cm ³ /1000 strokes | : 252.0 |
| Tolerance cm ³ /1000 strokes | : + 1.0 |
| Check tolerance cm ³ /1000S. | : + 4.0 |
| Spred Tolerance cm ³ /1000 strokes | 5.0 |
| Check tolerance cm ³ /1000S. | : 9.0 |

RATED SPEED

| | |
|----------------------------------|----------|
| control lever position degree | : 122.0 |
| tolerance degree | : + 4.0 |
| rack travel mm | : 14.10 |
| Rated speed rpm | : 995 |
| Tolerance 1/min | : + 5 |
| rack travel mm | : 4.00 |
| Rated speed rpm | : 1100 |
| Tolerance 1/min | : + 15 |
| rack travel mm | : 0.70 |
| Tolerance mm | : + 0.70 |
| Rated speed rpm | : 1200 |

LOW IDLE

control lever
position degree : 85.0
tolerance degree : + - 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 5.50
Tolerance mm : + - 0.10

Rated speed rpm : 200

CRT mm min. : > 8.50

Rated speed rpm : 325

TORQUE CONTROL

Rated speed rpm : 550
rack travel mm : 15.10
Tolerance mm : + - 0.05

Rated speed rpm : 950
rack travel mm : 15.10
Tolerance mm : + - 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 400
Pressure hPa : 1100
rack travel mm : 15.10
Tolerance mm : + - 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 400
rack travel mm : 9.15
Tolerance mm : + - 0.20

Rated speed rpm : 400

Pressure hPa : 150
rack travel mm : 10.05
Tolerance mm : + - 0.20

Pressure hPa : 550
rack travel mm : 73.85
Tolerance mm : + - 0.20

START CUT-OUT

Rated speed rpm : < 220
Check speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : 1100
Rated speed rpm : 950
Del. quantity cm³/1000 strokes : 240.0
Tolerance cm³/1000 strokes : + - 3.0
Check tolerance cm³/1000S. : + - 6.0
Spread Tolerance cm³/1000 strokes : 8.0
Check tolerance cm³/1000S. : 12.0

Aneroid pressure hPa : -
Rated speed rpm : 500
Del. quantity cm³/1000 strokes : 135.0
Tolerance cm³/1000 strokes : + - 1.0
Check tolerance cm³/1000S. : + - 4.0
Spread Tolerance cm³/1000 strokes : 8.0
Check tolerance cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 14.10
Rated speed rpm : 995
Tolerance 1/min : + - 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity cm³/1000 strokes : 235.0
Tolerance cm³/1000 strokes : + - 20.0
Check tolerance cm³/1000S. : + - 24.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 6.20
Tolerance mm : + 0.30
Del. quantity cm³/1000 strokes : 19.0
Tolerance cm³/1000 strokes : + 3.0
Check tolerance cm³/1000S. : + 6.0
Speed
Tolerance cm³/1000 strokes : 6.0
Check tolerance cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 12.06.95
Test oil : ISO 4113

Combination No. : 0 402 646 768

Injection pump
Pump designation : PE6P120A320LS7837
: -10
EP type number : 0 412 626 855

Governor
Governor design. : RQ300/950PA971-12
Governor no. : 0 421 801 765

Cust. part No. : 0260741302

Customer-spec. information

Customer : MB-NFZ
Motor : OM441 LA
Power KW : 250.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0
x inside diameter : 3.0
x Length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 5.25
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 20.50
Tolerance mm : + 0.50

Firing order : 6- 3- 5- 2- 4-
: 1-

Phasing : 0-60-120-180-240
: -300-360

Tolerance : + 0.30
Check
tolerance °NW : + 0.75

Start of delivery mark

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 550

Rack travel in mm : 15.10
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 252.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance cm³/1000S. : + 4.0
 Spred Tolerance cm³/1000 strokes : 5.0
 Check tolerance cm³/1000S. : 9.0
 Rated speed rpm : 300
 Rack travel in mm : 6.20
 Tolerance mm : + 0.30
 Del. quantity cm³/1000 strokes : 19.0
 Tolerance cm³/1000 strokes : + 3.0
 Check tolerance cm³/1000S. : + 6.0
 Spred Tolerance cm³/1000 strokes : 6.0
 Check tolerance cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
 guide sleeve travel mm : 1.72
 Tolerance mm : + 0.10
 Rated speed rpm : 1005
 guide sleeve travel mm : 6.34
 Tolerance mm : + 0.10
 Rated speed rpm : 950
 guide sleeve travel mm : 6.00
 Tolerance mm : + 0.10
 Rated speed rpm : 429
 guide sleeve travel mm : 4.46
 Tolerance mm : + 0.10
 Rated speed rpm : 580
 guide sleeve travel mm : 6.00
 Tolerance mm : + 0.10
 Rated speed rpm : 1190

guide sleeve travel mm : 11.50
 Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 600
 Rack travel in mm : 20.00
 Tolerance mm : + 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550
 Aneroid pressure hPa : 1100
 Del. quantity cm³/1000 strokes : 252.0
 Tolerance cm³/1000 strokes : + 1.0
 Check tolerance cm³/1000S. : + 4.0
 Spred Tolerance cm³/1000 strokes : 5.0
 Check tolerance cm³/1000S. : 9.0

RATED SPEED

control lever position degree : 100.0
 tolerance degree : + 4.0
 rack travel mm : 14.10
 Rated speed rpm : 998
 Tolerance 1/min : + 8
 rack travel mm : 4.00
 Rated speed rpm : 1108
 Tolerance 1/min : + 15
 rack travel mm : 0.75
 Tolerance mm : + 0.75
 Rated speed rpm : 1200

LOW IDLE

control lever position degree : 75.0
 tolerance degree : + 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 5.50
Tolerance mm : + - 0.10

rack travel mm : 2.00
Rated speed rpm : 435
Tolerance 1/min : + - 30

Rated speed rpm : 200

CRT mm min. : > 8.60

TORQUE CONTROL

Rated speed rpm : 550
rack travel mm : 15.10
Tolerance mm : + - 0.05

Rated speed rpm : 950
rack travel mm : 15.10
Tolerance mm : + - 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 400
Pressure hPa : 1100
rack travel mm : 15.10
Tolerance mm : + - 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 400
rack travel mm : 9.15
Tolerance mm : + - 0.20

Rated speed rpm : 400

Pressure hPa : 150
rack travel mm : 10.05
Tolerance mm : + - 0.20

Pressure hPa : 550
rack travel mm : 13.85
Tolerance mm : + - 0.20

START CUT-OUT

Rated speed rpm : < 220
Check speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : 1100
Rated speed rpm : 950
Del. quantity cm³/1000 strokes : 240.0
Tolerance cm³/1000 strokes : + - 3.0
Check tolerance cm³/1000S. : + - 6.0
Spread Tolerance cm³/1000 strokes : 8.0
Check tolerance cm³/1000S. : 12.0

Aneroid pressure hPa : -
Rated speed rpm : 500
Del. quantity cm³/1000 strokes : 135.0
Tolerance cm³/1000 strokes : + - 1.0
Check tolerance cm³/1000S. : + - 4.0
Spread Tolerance cm³/1000 strokes : 8.0
Check tolerance cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 14.10
Rated speed rpm : 998
Tolerance 1/min : + - 8

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity cm³/1000 strokes : 235.0
Tolerance cm³/1000 strokes : + - 20.0
Check tolerance cm³/1000S. : + - 24.0

LOW IDLE

Rated speed rpm : 300

rack travel mm : 6.20
Tolerance mm : + - 0.30
Del. quantity
cm3/1000 strokes : 19.0
Tolerance
cm3/1000 strokes : + - 3.0
Check tolerance
cm3/1000S. : + - 6.0
Spred
Tolerance
cm3/1000 strokes : 6.0
Check tolerance
cm3/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 12.06.95
Test oil : ISO 4113

Combination No. : 0 402 646 769

Injection pump
Pump designation : FE6P120A320LS7837
EP type number : -10
: 0 412 626 855

Governor
Governor design. : RQV300...950PA1168
: -5
Governor no. : 0 421 814 132

Cust. part No. : 0260740002

Customer-spec. information

Customer : MB-NFZ
Motor : OM441 LA
Power KW : 250.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Overflow quantity
min. l/h : 80
Tolerance l/h : + 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5

Tolerance bar : + 1.5

Test Lines : 1 680 750 075

Outside diameter : 8.0
x inside diameter : 3.0
x Length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 5.25
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 20.50
Tolerance mm : + 0.50

Firing order : 6- 3- 5- 2- 4-
: 1-

Phasing : 0-60-120-180-240
: -300-360

Tolerance : + 0.30
Check
tolerance °NW : + 0.75

Start of delivery mark

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 550

Rack travel in mm : 15.10
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 252.0

Tolerance cm³/1000 strokes : + - 1.0
 Check tolerance cm³/1000S. : + - 4.0
 Spred
 Tolerance cm³/1000 strokes : 5.0
 Check tolerance cm³/1000S. : 9.0
 Rated speed rpm : 300
 Rack travel in mm : 6.20
 Tolerance mm : + - 0.30
 Del. quantity cm³/1000 strokes : 19.0
 Tolerance cm³/1000 strokes : + - 3.0
 Check tolerance cm³/1000S. : + - 6.0
 Spred
 Tolerance cm³/1000 strokes : 6.0
 Check tolerance cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
 guide sleeve
 travel mm : 1.26
 Tolerance mm : + - 0.20
 Rated speed rpm : 1009
 guide sleeve
 travel mm : 8.28
 Tolerance mm : + - 0.15
 Rated speed rpm : 575
 guide sleeve
 travel mm : 4.46
 Tolerance mm : + - 0.25
 Rated speed rpm : 625
 guide sleeve
 travel mm : 5.03
 Tolerance mm : + - 0.25
 Rated speed rpm : 790
 guide sleeve
 travel mm : 6.16

Tolerance mm : + - 0.25
 Rated speed rpm : 1103
 guide sleeve
 travel mm : 10.00
 Tolerance mm : + - 0.25
 Rated speed rpm : 1200
 guide sleeve
 travel mm : 11.50
 Tolerance mm : + - 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1060
 Rack travel in mm : 14.10
 Tolerance mm : + - 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550
 Aneroid pressure hPa : 1100
 Del. quantity cm³/1000 strokes : 252.0
 Tolerance cm³/1000 strokes : + - 1.0
 Check tolerance cm³/1000S. : + - 4.0
 Spred
 Tolerance cm³/1000 strokes : 5.0
 Check tolerance cm³/1000S. : 9.0

RATED SPEED

control lever position degree : 123.0
 tolerance degree : + - 4.0
 rack travel mm : 14.10
 Rated speed rpm : 995
 Tolerance 1/min : + - 5
 rack travel mm : 4.00
 Rated speed rpm : 1090
 Tolerance 1/min : + - 15
 rack travel mm : 0.70
 Tolerance mm : + - 0.70
 Rated speed rpm : 1200

LOW IDLE

control lever
position degree : 79.0
tolerance degree : + - 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 3.50
Tolerance mm : + - 0.10

Rated speed rpm : 200

CRT mm min. : > 5.70

Rated speed rpm : 325

TORQUE CONTROL

Rated speed rpm : 550
rack travel mm : 15.10
Tolerance mm : + - 0.05

Rated speed rpm : 950
rack travel mm : 15.10
Tolerance mm : + - 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 400
Pressure hPa : 1100
rack travel mm : 15.10
Tolerance mm : + - 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 400
rack travel mm : 9.15
Tolerance mm : + - 0.20

Rated speed rpm : 400

Pressure hPa : 150
rack travel mm : 10.05
Tolerance mm : + - 0.20

Pressure hPa : 550
rack travel mm : 13.85
Tolerance mm : + - 0.20

START CUT-OUT

Rated speed rpm : < 220
Check speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : 1100
Rated speed rpm : 950
Del. quantity cm³/1000 strokes : 242.0
Tolerance cm³/1000 strokes : + - 3.0
Check tolerance cm³/1000S. : + - 6.0
Spread Tolerance cm³/1000 strokes : 8.0
Check tolerance cm³/1000S. : 12.0

Aneroid pressure hPa : -
Rated speed rpm : 500
Del. quantity cm³/1000 strokes : 135.0
Tolerance cm³/1000 strokes : + - 1.0
Check tolerance cm³/1000S. : + - 4.0
Spread Tolerance cm³/1000 strokes : 8.0
Check tolerance cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 14.10
Rated speed rpm : 995
Tolerance 1/min : + - 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity cm³/1000 strokes : 235.0
Tolerance cm³/1000 strokes : + - 20.0
Check tolerance cm³/1000S. : + - 24.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 6.20
Tolerance mm : + - 0.30
Del. quantity cm³/1000 strokes : 19.0
Tolerance cm³/1000 strokes : + - 3.0
Check tolerance cm³/1000S. : + - 6.0
Spred
Tolerance cm³/1000 strokes : 6.0
Check tolerance cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 02.06.95
Test oil : ISO 4113

Combination No. : 0 402 646 770

Injection pump
Pump designation : FE6P120A320LS7836
: -10
EP type number : 0 412 626 854

Governor
Governor design. : RQV300...1050PA1168
: -7
Governor no. : 0 421 814 143

Cust. part No. : 0250749902

Customer-spec. information

Customer : MB-NFZ
Motor : OM401 LA
Power KW : 200.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 75
Tolerance l/h : ± 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.55
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-
: 1-

Phasing : 0-60-120-180-240
: -300-360

Tolerance : ± 0.30

Check
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 13.00
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 190.0

Tolerance cm³/1000 strokes : + 1.0
 Check tolerance cm³/1000S. : + 4.0
 Spred
 Tolerance cm³/1000 strokes : 5.0
 Check tolerance cm³/1000S. : 9.0
 Rated speed rpm : 300
 Rack travel in mm : 5.80
 Tolerance mm : + 0.30
 Del. quantity cm³/1000 strokes : 19.0
 Tolerance cm³/1000 strokes : + 3.0
 Check tolerance cm³/1000S. : + 6.0
 Spred
 Tolerance cm³/1000 strokes : 6.0
 Check tolerance cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
 guide sleeve
 travel mm : 1.29
 Tolerance mm : + 0.25
 Rated speed rpm : 1107
 guide sleeve
 travel mm : 8.52
 Tolerance mm : + 0.25
 Rated speed rpm : 1640
 guide sleeve
 travel mm : 25.13
 Tolerance mm : + 0.25
 Rated speed rpm : 558
 guide sleeve
 travel mm : 4.53
 Tolerance mm : + 0.25
 Rated speed rpm : 608
 guide sleeve
 travel mm : 5.03

Tolerance mm : + 0.25
 Rated speed rpm : 820
 guide sleeve
 travel mm : 6.13
 Tolerance mm : + 0.25
 Rated speed rpm : 1183
 guide sleeve
 travel mm : 10.00
 Tolerance mm : + 0.25
 Rated speed rpm : 1280
 guide sleeve
 travel mm : 11.50
 Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1145
 Rack travel in mm : 12.00
 Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
 Aneroid pressure hPa : 800
 Del. quantity cm³/1000 strokes : 190.0
 Tolerance cm³/1000 strokes : + 1.0
 Check tolerance cm³/1000S. : + 4.0
 Spred
 Tolerance cm³/1000 strokes : 5.0
 Check tolerance cm³/1000S. : 9.0

RATED SPEED

control lever position degree : 120.0
 tolerance degree : + 4.0
 rack travel mm : 12.00
 Rated speed rpm : 1095
 Tolerance 1/min : + 5
 rack travel mm : 4.00
 Rated speed rpm : 1170
 Tolerance 1/min : + 15
 rack travel mm : 0.75

Tolerance mm : +- 0.75
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 65.0
tolerance degree : +- 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 3.50
Tolerance mm : +- 0.10

Rated speed rpm : 200

CRT mm min. : > 5.30

Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 13.00
Tolerance mm : +- 0.05

Rated speed rpm : 550
rack travel mm : 13.00
Tolerance mm : +- 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 400
Pressure hPa : 800
rack travel mm : 13.00
Tolerance mm : +- 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 400
rack travel mm : 10.90
Tolerance mm : +- 0.15

Rated speed rpm : 400

Pressure hPa : 200
rack travel mm : 11.40
Tolerance mm : +- 0.15

Pressure hPa : 350

rack travel mm : 12.25
Tolerance mm : +- 0.15

START CUT-OUT

Rated speed rpm : < 220
Check speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : 800
Rated speed rpm : 550
Del. quantity cm³/1000 strokes : 189.0
Tolerance cm³/1000 strokes : +- 3.0
Check tolerance cm³/1000S. : +- 6.0
Spread Tolerance cm³/1000 strokes : 8.0
Check tolerance cm³/1000S. : 12.0

Aneroid pressure hPa : -
Rated speed rpm : 500
Del. quantity cm³/1000 strokes : 132.0
Tolerance cm³/1000 strokes : +- 1.0
Check tolerance cm³/1000S. : +- 4.0
Spread Tolerance cm³/1000 strokes : 8.0
Check tolerance cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 12.00
Rated speed rpm : 1095
Tolerance 1/min : +- 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity cm³/1000 strokes : 210.0
Tolerance cm³/1000 strokes : +- 20.0

Check tolerance : +
cm3/1000S. : + 24.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 5.80
Tolerance mm : + 0.30
Del. quantity
cm3/1000 strokes : 19.0
Tolerance
cm3/1000 strokes : + 3.0
Check tolerance
cm3/1000S. : + 6.0
Spred
Tolerance
cm3/1000 strokes : 6.0
Check tolerance
cm3/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 02.06.95
Test oil : ISO 4113

Combination No. : 0 402 646 771

Injection pump
Pump designation : PE6P120A320LS7836-2
EP type number : 0 412 626 944

Governor
Governor design. : RQV300...1050PA1168
: -8
Governor no. : 0 421 814 141

Cust. part No. : 0250749802

Customer-spec. information

Customer : MB-NFZ
Motor : OM401 LA
Power KW : 180.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Overflow quantity
min. l/h : 95
Tolerance l/h : + 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 075
Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 5.55
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 20.50
Tolerance mm : + 0.50

Firing order : 6- 3- 5- 2- 4-
: 1-

Phasing : 0-60-120-180-240
: -300-360

Tolerance : + 0.30
Check
tolerance °NW : + 0.75

Start of delivery mark

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 12.40
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 173.0

Tolerance cm³/1000 strokes : + 1.0
 Check tolerance cm³/1000S. : + 4.0
 Spred
 Tolerance cm³/1000 strokes : 5.0
 Check tolerance cm³/1000S. : 9.0
 Rated speed rpm : 300
 Rack travel in mm : 5.80
 Tolerance mm : + 0.30
 Del. quantity cm³/1000 strokes : 19.0
 Tolerance cm³/1000 strokes : + 3.0
 Check tolerance cm³/1000S. : + 6.0
 Spred
 Tolerance cm³/1000 strokes : 6.0
 Check tolerance cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
 guide sleeve
 travel mm : 1.29
 Tolerance mm : + 0.20
 Rated speed rpm : 1107
 guide sleeve
 travel mm : 8.51
 Tolerance mm : + 0.15
 Rated speed rpm : 558
 guide sleeve
 travel mm : 4.53
 Tolerance mm : + 0.25
 Rated speed rpm : 608
 guide sleeve
 travel mm : 5.03
 Tolerance mm : + 0.25
 Rated speed rpm : 820
 guide sleeve
 travel mm : 6.13
 Tolerance mm : + 0.25

Rated speed rpm : 1183
 guide sleeve
 travel mm : 10.00
 Tolerance mm : + 0.25
 Rated speed rpm : 1280
 guide sleeve
 travel mm : 11.50
 Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1150
 Rack travel in mm : 11.40
 Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
 Aneroid pressure hPa : 700
 Del. quantity cm³/1000 strokes : 173.0
 Tolerance cm³/1000 strokes : + 1.0
 Check tolerance cm³/1000S. : + 4.0
 Spred
 Tolerance cm³/1000 strokes : 5.0
 Check tolerance cm³/1000S. : 9.0

RATED SPEED

control lever position degree : 119.0
 tolerance degree : + 4.0
 rack travel mm : 11.40
 Rated speed rpm : 1095
 Tolerance 1/min : + 5
 rack travel mm : 4.00
 Rated speed rpm : 1170
 Tolerance 1/min : + 15
 rack travel mm : 0.75
 Tolerance mm : + 0.75
 Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 65.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 3.50
Tolerance mm : + 0.10

Rated speed rpm : 200

CRT mm min. : > 5.30

Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 12.40
Tolerance mm : + 0.05

Rated speed rpm : 550
rack travel mm : 12.40
Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 400
Pressure hPa : 700
rack travel mm : 12.40
Tolerance mm : + 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 400
rack travel mm : 10.90
Tolerance mm : + 0.15

Rated speed rpm : 400

Pressure hPa : 200
rack travel mm : 11.45
Tolerance mm : + 0.20

Pressure hPa : 300
rack travel mm : 12.00
Tolerance mm : + 0.20

Rated speed rpm : < 220
Check speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : 700
Rated speed rpm : 550
Del. quantity cm³/1000 strokes : 169.0
Tolerance cm³/1000 strokes : + 3.0
Check tolerance cm³/1000S. : + 6.0
Spread Tolerance cm³/1000 strokes : 8.0
Check tolerance cm³/1000S. : 12.0

Aneroid pressure hPa : -
Rated speed rpm : 500
Del. quantity cm³/1000 strokes : 132.0
Tolerance cm³/1000 strokes : + 1.0
Check tolerance cm³/1000S. : + 4.0
Spread Tolerance cm³/1000 strokes : 8.0
Check tolerance cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 11.40
Rated speed rpm : 1095
Tolerance 1/min : + 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity cm³/1000 strokes : 210.0
Tolerance cm³/1000 strokes : + 15.0
Check tolerance cm³/1000S. : + 19.0

START CUT-OUT

LOW IDLE

Rated speed rpm : 300
rack travel mm : 5.80
Tolerance mm : + - 0.30
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 6.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 31.05.95
Test oil : ISO 4113

Combination No. : 0 402 646 785A

Injection pump
Pump designation : FE6P120A320LS7869
EP type number : 0 412 626 887

Governor
Governor design. : RQV300...1050PA1078K
Governor no. : 0 421 815 359

Cust. part No. : 9275445

Customer-spec. information

Customer : LIEBHERR
Motor : D 9406 TI
Power KW : 300.0

TEST BENCH REQUIREMENTS

Inlet Line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Overflow quantity
min. l/h : 165
Tolerance l/h : + 20.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 3.65
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 6- 3- 5- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.30
Check tolerance °NW : + 0.50

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 12.00
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 279.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000s. : + 4.0

Spred
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 6.10
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 50.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Spred
Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
guide sleeve
travel mm : 1.69
Tolerance mm : + 0.25

Rated speed rpm : 1117
guide sleeve
travel mm : 10.38
Tolerance mm : + 0.25

Rated speed rpm : 746
guide sleeve
travel mm : 6.20
Tolerance mm : + 0.25

Rated speed rpm : 353
guide sleeve
travel mm : 2.45
Tolerance mm : + 0.25

Rated speed rpm : 403
guide sleeve
travel mm : 3.18
Tolerance mm : + 0.25

Rated speed rpm : 450
guide sleeve
travel mm : 3.66
Tolerance mm : + 0.25

Rated speed rpm : 1320
guide sleeve
travel mm : 13.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1185

Rack travel in mm : 11.00
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure
hPa : 1550

Del. quantity
cm³/1000 strokes : 279.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spred
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

RATED SPEED

control lever
position degree : 121.0
tolerance degree : + 4.0

rack travel mm : 11.00
Rated speed rpm : 1105
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1185
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 74.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 6.10
Tolerance mm : + - 0.10

Rated speed rpm : 200

CRT mm min. : > 8.00

Rated speed rpm : 400

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 12.00
Tolerance mm : + - 0.05

Rated speed rpm : 800
rack travel mm : 11.65
Tolerance mm : + - 0.10

Rated speed rpm : 500
rack travel mm : 9.75
Tolerance mm : + - 0.10

Rated speed rpm : 950
rack travel mm : 11.85
Tolerance mm : + - 0.10

Rated speed rpm : 600
rack travel mm : 10.25
Tolerance mm : + - 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1050
Pressure hPa : 1550
rack travel mm : 12.00
Tolerance mm : + - 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 1050
rack travel mm : 9.35
Tolerance mm : + - 0.10

Rated speed rpm : 1050

Pressure hPa : 725
rack travel mm : 10.70
Tolerance mm : + - 0.05

Pressure hPa : 525
rack travel mm : 9.50
Tolerance mm : + - 0.10

START CUT-OUT

Rated speed rpm : < 220
Check speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : 1550
Rated speed rpm : 800
Del. quantity cm³/1000 strokes : 295.0
Tolerance cm³/1000 strokes : + - 3.0
Check tolerance cm³/1000S. : + - 6.0

Aneroid pressure hPa : 1550
Rated speed rpm : 500
Del. quantity cm³/1000 strokes : 270.0
Tolerance cm³/1000 strokes : + - 3.0
Check tolerance cm³/1000S. : + - 6.0

Aneroid pressure hPa : -
Rated speed rpm : 550
Del. quantity cm³/1000 strokes : 250.0
Tolerance cm³/1000 strokes : + - 1.0
Check tolerance cm³/1000S. : + - 4.0
Spread Tolerance cm³/1000 strokes : 8.0
Check tolerance cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 11.00
Rated speed rpm : 1105
Tolerance 1/min : + - 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 9.55
Tolerance mm : + - 0.20
Del. quantity
cm³/1000 strokes : 170.0
Tolerance
cm³/1000 strokes : + - 10.0
Check tolerance
cm³/1000S. : + - 14.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 6.10
Tolerance mm : + - 0.10
Del. quantity
cm³/1000 strokes : 50.0
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 6.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 22.06.95
Test oil : ISO 4113

Combination No. : 0 402 646 786A

Injection pump
Pump designation : PE6P120A320LS7846
EP type number : 0 412 626 865

Governor
Governor design. : RQV300...1050PA1065
Governor no. : 0 421 814 053

Cust. part No. : 0240747802

Customer-spec. information

Customer : MB-NFZ
Motor : OM401 LA
Power KW : 230.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Tolerance l/h : + 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0
x inside diameter : 3.0
x Length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 5.55
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 20.50
Tolerance mm : + 0.50

Firing order : 6- 3- 5- 2- 4-
: 1

Phasing : 0-60-120-180-240
: -300

Tolerance
Check
tolerance °NW : + 0.30

Start of delivery mark

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 550

Rack travel in mm : 14.80
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 230.0

Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 4.0
 Spred
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0
 Rated speed rpm : 300
 Rack travel in mm : 6.30
 Tolerance mm : + 0.30
 Del. quantity
 cm³/1000 strokes : 13.0
 Tolerance
 cm³/1000 strokes : + 3.0
 Check tolerance
 cm³/1000S. : + 6.0
 Spred
 Tolerance
 cm³/1000 strokes : 6.0
 Check tolerance
 cm³/1000S. : 10.0

Rated speed rpm : 1310
 guide sleeve
 travel mm : 13.50
 Tolerance mm : + 0.50

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
 guide sleeve
 travel mm : 1.13
 Tolerance mm : + 0.20
 Rated speed rpm : 1108
 guide sleeve
 travel mm : 9.82
 Tolerance mm : + 0.10
 Rated speed rpm : 370
 guide sleeve
 travel mm : 2.00
 Tolerance mm : + 0.25
 Rated speed rpm : 420
 guide sleeve
 travel mm : 2.49
 Tolerance mm : + 0.25
 Rated speed rpm : 750
 guide sleeve
 travel mm : 4.87
 Tolerance mm : + 0.25

GUIDE SLEEVE POSITION

Rated speed rpm : 1200
 Rack travel in mm : 13.80
 Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550
 Aneroid pressure hPa : 1000
 Del. quantity
 cm³/1000 strokes : 230.0
 Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 4.0
 Spred
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

RATED SPEED

control lever
 position degree : 104.0
 tolerance degree : + 4.0
 rack travel mm : 13.80
 Rated speed rpm : 1095
 Tolerance 1/min : + 5
 rack travel mm : 4.00
 Rated speed rpm : 1195
 Tolerance 1/min : + 15
 rack travel mm : 0.75
 Tolerance mm : + 0.75
 Rated speed rpm : 1300

LOW IDLE

control lever
 position degree : 68.0
 tolerance degree : + 4.0

Testing:

Rated speed rpm : 300
 rack travel mm : 5.20
 Tolerance mm : + - 0.10

Rated speed rpm : 200

CRT mm min. : > 8.10

Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 550
 rack travel mm : 14.80
 Tolerance mm : + - 0.05

Rated speed rpm : 1050
 rack travel mm : 14.80
 Tolerance mm : + - 0.10

Rated speed rpm : 700
 rack travel mm : 14.80
 Tolerance mm : + - 0.05

ANEROID/ALTITUDE COMPENSATOR TEST**SETTING**

Rated speed rpm : 400
 Pressure hPa : 1000
 rack travel mm : 14.80
 Tolerance mm : + - 0.05

MEASUREMENT

Pressure hPa : -
 Rated speed rpm : 400
 rack travel mm : 10.80
 Tolerance mm : + - 0.15

Rated speed rpm : 400

Pressure hPa : 400
 rack travel mm : 12.90
 Tolerance mm : + - 0.20

Pressure hPa : 600
 rack travel mm : 14.15
 Tolerance mm : + - 0.20

START CUT-OUT

Rated speed rpm : < 220

Check speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : 1000
 Rated speed rpm : 1050
 Del. quantity cm3/1000 strokes : 229.0
 Tolerance cm3/1000 strokes : + - 3.0
 Check tolerance cm3/1000S. : + - 6.0
 Spread
 Tolerance cm3/1000 strokes : 8.0
 Check tolerance cm3/1000S. : 12.0

Aneroid pressure hPa : -
 Rated speed rpm : 500
 Del. quantity cm3/1000 strokes : 134.0
 Tolerance cm3/1000 strokes : + - 1.0
 Check tolerance cm3/1000S. : + - 4.0
 Spread
 Tolerance cm3/1000 strokes : 8.0
 Check tolerance cm3/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 13.80
 Rated speed rpm : 1095
 Tolerance 1/min : + - 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity cm3/1000 strokes : 210.0
 Tolerance cm3/1000 strokes : + - 15.0
 Check tolerance cm3/1000S. : + - 19.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 6.30
Tolerance mm : + - 0.30
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 6.0
Spred
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.06.95
Test oil : ISO 4113

Combination No. : 0 402 646 794A

Injection pump
Pump designation : PE6P120A320LS7858
EP type number : 0 412 626 875

Governor
Governor design. : RQV300...1050PA1033
: -9
Governor no. : 0 421 814 028

Cust. part No. : 0230749402

Customer-spec. information

Customer : AB-NFZ
Motor : OM401 LA
Power KW : 200.0

TEST BENCH REQUIREMENTS

Inlet Line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Tolerance l/h : + 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 5.55
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 20.50
Tolerance mm : + 0.50

Firing order : 6- 3- 5- 2- 4-
: 1-

Phasing : 0-60-120-180-240
: -300-360

Tolerance : + 0.30
Check
tolerance °NW : + 0.50

Start of delivery mark

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 13.00
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 190.0

Tolerance _____
 cm³/1000 strokes : + 1.0
 Check tolerance _____
 cm³/1000S. : + 4.0
 Spred
 Tolerance _____
 cm³/1000 strokes : 5.0
 Check tolerance _____
 cm³/1000S. : 9.0
 Rated speed rpm : 300
 Rack travel in mm : 5.80
 Tolerance mm : + 0.30
 Del. quantity
 cm³/1000 strokes : 19.0
 Tolerance
 cm³/1000 strokes : + 3.0
 Check tolerance
 cm³/1000S. : + 6.0
 Spred
 Tolerance
 cm³/1000 strokes : 6.0
 Check tolerance
 cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
 guide sleeve
 travel mm : 1.29
 Tolerance mm : + 0.20
 Rated speed rpm : 1107
 guide sleeve
 travel mm : 8.52
 Tolerance mm : + 0.15
 Rated speed rpm : 1183
 guide sleeve
 travel mm : 10.00
 Tolerance mm : + 0.25
 Rated speed rpm : 558
 guide sleeve
 travel mm : 4.53
 Tolerance mm : + 0.25
 Rated speed rpm : 608
 guide sleeve
 travel mm : 5.03

Tolerance mm : + 0.25
 Rated speed rpm : 820
 guide sleeve
 travel mm : 6.13
 Tolerance mm : + 0.25
 Rated speed rpm : 1280
 guide sleeve
 travel mm : 11.50
 Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1155
 Rack travel in mm : 12.00
 Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
 Aneroid pressure
 hPa : 800
 Del. quantity
 cm³/1000 strokes : 190.0
 Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 4.0
 Spred
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

RATED SPEED

control lever
 position degree : 120.0
 tolerance degree : + 4.0
 rack travel mm : 12.00
 Rated speed rpm : 1095
 Tolerance 1/min : + 5
 rack travel mm : 4.00
 Rated speed rpm : 1175
 Tolerance 1/min : + 15
 rack travel mm : 0.75
 Tolerance mm : + 0.75
 Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 66.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 5.80
Tolerance mm : + 0.10

Rated speed rpm : 200
CRT mm min. : > 7.60

Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 13.00
Tolerance mm : + 0.05

Rated speed rpm : 550
rack travel mm : 13.00
Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 400
Pressure hPa : 800
rack travel mm : 13.00
Tolerance mm : + 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 400
rack travel mm : 10.55
Tolerance mm : + 0.15

Rated speed rpm : 400

Pressure hPa : 200
rack travel mm : 11.40
Tolerance mm : + 0.20

Pressure hPa : 350
rack travel mm : 12.25
Tolerance mm : + 0.20

Rated speed rpm : < 220
Check speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : 800
Rated speed rpm : 550
Del. quantity cm³/1000 strokes : 189.0
Tolerance cm³/1000 strokes : + 3.0
Check tolerance cm³/1000S. : + 6.0
Spread
Tolerance cm³/1000 strokes : 8.0
Check tolerance cm³/1000S. : 12.0

Aneroid pressure hPa : -
Rated speed rpm : 500
Del. quantity cm³/1000 strokes : 127.0
Tolerance cm³/1000 strokes : + 1.0
Check tolerance cm³/1000S. : + 4.0
Spread
Tolerance cm³/1000 strokes : 8.0
Check tolerance cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 12.00
Rated speed rpm : 1095
Tolerance 1/min : + 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity cm³/1000 strokes : 210.0
Tolerance cm³/1000 strokes : + 15.0
Check tolerance cm³/1000S. : + 19.0

START CUT-OUT

LOW IDLE

Rated speed rpm : 300
rack travel mm : 5.80
Tolerance mm : + - 0.30
Del. quantity cm³/1000 strokes : 19.0
Tolerance cm³/1000 strokes : + - 3.0
Check tolerance cm³/1000S. : + - 6.0
Speed
Tolerance cm³/1000 strokes : 6.0
Check tolerance cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.06.95
Test oil : ISO 4113

Combination No. : 0 402 646 795A

Injection pump
Pump designation : PE6P120A320LS7858-1
EP type number : 0 412 626 911

Governor
Governor design. : RQV300...1050PA1033
: -8
Governor no. : 0 421 814 027

Cust. part No. : 0230749002

Customer-spec. information

Customer : MB-NFZ
Motor : OM401 LA
Power KW : 180.0

TEST BENCH REQUIREMENTS

Inlet Line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Tolerance l/h : + 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 5.55
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 20.50
Tolerance mm : + 0.50

Firing order : 6- 3- 5- 2- 4-
: 1-

Phasing : 0-60-120-180-240
: -300-360

Tolerance : + 0.30
Check
tolerance °NW : + 0.50

Start of delivery mark

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 12.40
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 173.0

Tolerance cm³/1000 strokes : +⁻ 1.0
 Check tolerance cm³/1000S. : +⁻ 4.0
 Spread
 Tolerance cm³/1000 strokes : 5.0
 Check tolerance cm³/1000S. : 9.0
 Rated speed rpm : 300
 Rack travel in mm : 5.80
 Tolerance mm : +⁻ 0.30
 Del. quantity cm³/1000 strokes : 19.0
 Tolerance cm³/1000 strokes : +⁻ 3.0
 Check tolerance cm³/1000S. : +⁻ 6.0
 Spread
 Tolerance cm³/1000 strokes : 6.0
 Check tolerance cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
 guide sleeve
 travel mm : 1.29
 Tolerance mm : +⁻ 0.20
 Rated speed rpm : 1107
 guide sleeve
 travel mm : 8.52
 Tolerance mm : +⁻ 0.15
 Rated speed rpm : 558
 guide sleeve
 travel mm : 4.53
 Tolerance mm : +⁻ 0.25
 Rated speed rpm : 608
 guide sleeve
 travel mm : 5.03
 Tolerance mm : +⁻ 0.25
 Rated speed rpm : 820
 guide sleeve
 travel mm : 6.13

Tolerance mm : +⁻ 0.25
 Rated speed rpm : 1183
 guide sleeve
 travel mm : 10.00
 Tolerance mm : +⁻ 0.25
 Rated speed rpm : 1280
 guide sleeve
 travel mm : 11.50
 Tolerance mm : +⁻ 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1150
 Rack travel in mm : 11.40
 Tolerance mm : +⁻ 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
 Aneroid pressure hPa : 700
 Del. quantity cm³/1000 strokes : 173.0
 Tolerance cm³/1000 strokes : +⁻ 1.0
 Check tolerance cm³/1000S. : +⁻ 4.0
 Spread
 Tolerance cm³/1000 strokes : 5.0
 Check tolerance cm³/1000S. : 9.0

RATED SPEED

control lever position degree : 119.0
 tolerance degree : +⁻ 4.0
 rack travel mm : 11.40
 Rated speed rpm : 1095
 Tolerance 1/min : +⁻ 5
 rack travel mm : 4.00
 Rated speed rpm : 1170
 Tolerance 1/min : +⁻ 15
 rack travel mm : 0.75
 Tolerance mm : +⁻ 0.75
 Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 66.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 5.80
Tolerance mm : + 0.10

Rated speed rpm : 200

CRT mm min. : > 7.60

Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 12.40
Tolerance mm : + 0.05

Rated speed rpm : 550
rack travel mm : 12.40
Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 400
Pressure hPa : 700
rack travel mm : 12.40
Tolerance mm : + 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 400
rack travel mm : 11.05
Tolerance mm : + 0.15

Rated speed rpm : 400

Pressure hPa : 200
rack travel mm : 11.45
Tolerance mm : + 0.20

Pressure hPa : 300
rack travel mm : 12.00
Tolerance mm : + 0.20

Rated speed rpm : < 220
Check speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : 700
Rated speed rpm : 550
Del. quantity cm³/1000 strokes : 169.0
Tolerance cm³/1000 strokes : + 3.0
Check tolerance cm³/1000S. : + 6.0
Spread
Tolerance cm³/1000 strokes : 8.0
Check tolerance cm³/1000S. : 12.0

Aneroid pressure hPa : -
Rated speed rpm : 500
Del. quantity cm³/1000 strokes : 135.0
Tolerance cm³/1000 strokes : + 1.0
Check tolerance cm³/1000S. : + 4.0
Spread
Tolerance cm³/1000 strokes : 8.0
Check tolerance cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 11.40
Rated speed rpm : 1095
Tolerance 1/min : + 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity cm³/1000 strokes : 210.0
Tolerance cm³/1000 strokes : + 15.0
Check tolerance cm³/1000S. : + 19.0

START CUT-OUT

LOW IDLE

Rated speed rpm : 300
rack travel mm : 5.80
Tolerance mm : + - 0.30
Del. quantity cm³/1000 strokes : 19.0
Tolerance cm³/1000 strokes : + - 3.0
Check tolerance cm³/1000S. : + - 6.0
Speed
Tolerance cm³/1000 strokes : 6.0
Check tolerance cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.06.91
Test oil : ISO 4113

Combination No. : 0 402 646 877

Injection pump
Pump designation : PE6P130A720RS7122-1
EP type number : 0 412 636 812

Governor
Governor design. : RQV225...930PA922
Governor no. : 0 421 813 763

Cust. part No. :

Customer-spec. information

Customer : VOLVO-TRUCK
Motor : TD162 FL,FJ,
Power KW : 331.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Test nozzle holder
assembly : 1 688 901 019

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 067

Outside diameter : 6.0

x inside diameter : 1.5
x length mm : 1000

REMARKS

Start-of-delivery setting with ROBO diaphragm.

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.30
Check tolerance °NW : + 0.75

BASIC SETTING

Del. quantity
cm3/1000 strokes : 302.5

Tolerance
cm3/1000 strokes : + 1.5

Check tolerance
cm3/1000S. : + 5.0

Spread
Tolerance
cm3/1000 strokes : 6.0

Check tolerance
cm3/1000S. : 10.0

Del. quantity
cm3/1000 strokes : 28.0

Tolerance
cm3/1000 strokes : + 2.5

Check tolerance
cm3/1000S. : + 5.0

Spread

Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 250
guide sleeve
travel mm : 1.20
Tolerance mm : + - 0.20

Rated speed rpm : 975
guide sleeve
travel mm : 8.30
Tolerance mm : + - 0.10

Rated speed rpm : 350
guide sleeve
travel mm : 2.40
Tolerance mm : + - 0.30

Rated speed rpm : 700
guide sleeve
travel mm : 5.90
Tolerance mm : + - 0.30

Rated speed rpm : 1090
guide sleeve
travel mm : 9.70
Tolerance mm : + - 0.20

GUIDE SLEEVE POSITION

Rated speed rpm : 1100

Rack travel in mm : 9.00
Tolerance mm : + - 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 302.5
Tolerance
cm³/1000 strokes : + - 1.5
Check tolerance
cm³/1000S. : + - 5.0
Spread
Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

RATED SPEED

control lever
position degree : 120.0
tolerance degree : + - 4.0

rack travel mm : 12.50
Rated speed rpm : 975
Tolerance 1/min : + - 5

rack travel mm : 4.00
Rated speed rpm : 1105
Tolerance 1/min : + - 15

rack travel mm : 0.50
Tolerance mm : + - 0.50
Rated speed rpm : 1200

LOW IDLE

control lever
position degree : 64.0
tolerance degree : + - 4.0

Testing:

Rated speed rpm : 250
rack travel mm : 5.00
Tolerance mm : + - 0.10

Rated speed rpm : 100

CRT mm min. : > 6.50

Rated speed rpm : 350

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200
rack travel mm : 13.55
Tolerance mm : + - 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500

rack travel mm : 9.60
Tolerance mm : + - 0.10

Rated speed rpm : 500

Pressure hPa : 720
rack travel mm : 3.60
Tolerance mm : + - 0.10

Pressure hPa : 85
rack travel mm : 0.25
Tolerance mm : + - 0.05

Spred
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 8.0

End of test specification sheet

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 700
Del. quantity
cm3/1000 strokes : 182.5
Tolerance
cm3/1000 strokes : + - 1.5
Check tolerance
cm3/1000S. : + - 5.0

BREAKAWAY

Rack travel in mm : 12.50
Rated speed rpm : 975
Tolerance 1/min : + - 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 9.60
Tolerance mm : + - 0.10
Del. quantity
cm3/1000 strokes : 130.0
Tolerance
cm3/1000 strokes : + - 10.0
Check tolerance
cm3/1000S. : + - 14.0

LOW IDLE

Del. quantity
cm3/1000 strokes : 28.0
Tolerance
cm3/1000 strokes : + - 2.5
Check tolerance
cm3/1000S. : + - 5.0

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.07.95
Test oil : ISO 4113

Combination No. : 0 402 646 969

Injection pump
Pump designation : PE6P120A320RS7248
: -10Z
EP type number : 0 412 626 901

Governor
Governor design. : RQV275...1150PA986
Governor no. : 0 421 813 920

Cust. part No. : 1248041/4

Customer-spec. information

Customer : DAF
Motor : RS 200 L
Power KW : 200.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Overflow quantity
min. l/h : 130
Tolerance l/h : + 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 089
Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 5.25
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 11.50
Tolerance mm : + 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : + 0.30
Check
tolerance °NW : + 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 11.70
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 167.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spred
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : 5.40
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 16.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Spred
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 1335

Rack travel in mm : 10.30
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 167.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spred
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

RATED SPEED

control lever
position degree : 120.0
tolerance degree : + 4.0

rack travel mm : 10.70
Rated speed rpm : 1182
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1290
Tolerance 1/min : + 15

rack travel mm : 0.70
Tolerance mm : + 0.70
Rated speed rpm : 1450

LOW IDLE

control lever
position degree : 83.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 275
rack travel mm : 4.70
Tolerance mm : + 0.10

Rated speed rpm : 175

CRT mm min. : > 7.50

Rated speed rpm : 340

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 11.70
Tolerance mm : + 0.05

Rated speed rpm : 1150
rack travel mm : 11.70
Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 600

Pressure hPa : 1000
rack travel mm : 11.70
Tolerance mm : + - 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 600
rack travel mm : 9.10
Tolerance mm : + - 0.10

Rated speed rpm : 600

Pressure hPa : 340
rack travel mm : 10.75
Tolerance mm : + - 0.05

Pressure hPa : 200
rack travel mm : 9.70
Tolerance mm : + - 0.10

Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

End of test specification sheet

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Del. quantity
cm3/1000 strokes : 117.0
Tolerance
cm3/1000 strokes : + - 1.0
Check tolerance
cm3/1000S. : + - 4.0

BREAKAWAY

Rack travel in mm : 10.70
Rated speed rpm : 1182
Tolerance 1/min : + - 5

LOW IDLE

Rated speed rpm : 275
rack travel mm : 5.40
Tolerance mm : + - 0.10
Del. quantity
cm3/1000 strokes : 16.0
Tolerance
cm3/1000 strokes : + - 3.0
Check tolerance
cm3/1000S. : + - 6.0
Spread

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 28.06.94
Test oil : ISO 4113

Combination No. : 0 402 646 983

Injection pump
Pump designation : PE6P120A320LS7846
EP type number : 0 412 626 865

Governor
Governor design. : RQV300...1050PA1033
: -2
Governor no. : 0 421 813 994

Cust. part No. : 0230741102

Customer-spec. information

Customer : MB-NFZ
Motor : OM401 LA
Power KW : 230.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Overflow quantity
min. l/h : 110
Tolerance l/h : + 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 075
Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 5.25
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 20.50
Tolerance mm : + 0.50

Firing order : 6- 3- 5- 2- 4-
: 1

Phasing : 0-60-120-180-240
: -300

Tolerance : + 0.30
Check
tolerance °NW : + 0.50

Start of delivery mark

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 13.00
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 231.0

Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 4.0
 Spred
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0
 Rated speed rpm : 300
 Rack travel in mm : 5.20
 Tolerance mm : + 0.30
 Del. quantity
 cm³/1000 strokes : 13.0
 Tolerance
 cm³/1000 strokes : + 3.0
 Check tolerance
 cm³/1000S. : + 6.0
 Spred
 Tolerance
 cm³/1000 strokes : 6.0
 Check tolerance
 cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
 guide sleeve
 travel mm : 0.74
 Tolerance mm : + 0.20
 Rated speed rpm : 1107
 guide sleeve
 travel mm : 8.38
 Tolerance mm : + 0.15
 Rated speed rpm : 575
 guide sleeve
 travel mm : 4.52
 Tolerance mm : + 0.25
 Rated speed rpm : 625
 guide sleeve
 travel mm : 5.04
 Tolerance mm : + 0.25
 Rated speed rpm : 830
 guide sleeve
 travel mm : 6.13
 Tolerance mm : + 0.25

Rated speed rpm : 1190
 guide sleeve
 travel mm : 10.00
 Tolerance mm : + 0.25
 Rated speed rpm : 1290
 guide sleeve
 travel mm : 11.50
 Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1160
 Rack travel in mm : 11.70
 Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 231.0
 Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 4.0
 Spred
 Tolerance
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 9.0

RATED SPEED

control lever
 position degree : 120.0
 tolerance degree : + 4.0
 rack travel mm : 12.00
 Rated speed rpm : 1095
 Tolerance 1/min : + 5
 rack travel mm : 4.00
 Rated speed rpm : 1170
 Tolerance 1/min : + 15
 rack travel mm : 0.75
 Tolerance mm : + 0.75
 Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 80.0
tolerance degree : + - 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 5.20
Tolerance mm : + - 0.10

Rated speed rpm : 200

CRT mm min. : > 7.50

Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 13.00
Tolerance mm : + - 0.05

Rated speed rpm : 1050
rack travel mm : 13.00
Tolerance mm : + - 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 400
Pressure hPa : 1000
rack travel mm : 13.00
Tolerance mm : + - 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 400
rack travel mm : 10.35
Tolerance mm : + - 0.15

Rated speed rpm : 400

Pressure hPa : 400
rack travel mm : 11.55
Tolerance mm : + - 0.10

Pressure hPa : 600
rack travel mm : 12.50
Tolerance mm : + - 0.10

START CUT-OUT

Rated speed rpm : < 220
Check speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : 1000
Rated speed rpm : 1050
Del. quantity cm³/1000 strokes : 228.0
Tolerance cm³/1000 strokes : + - 2.0
Check tolerance cm³/1000S. : + - 5.0
Spread
Tolerance cm³/1000 strokes : 8.0
Check tolerance cm³/1000S. : 12.0

Aneroid pressure hPa : -
Rated speed rpm : 500
Del. quantity cm³/1000 strokes : 133.0
Tolerance cm³/1000 strokes : + - 1.0
Check tolerance cm³/1000S. : + - 4.0
Spread
Tolerance cm³/1000 strokes : 8.0
Check tolerance cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 12.00
Rated speed rpm : 1095
Tolerance 1/min : + - 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 13.75
Tolerance mm : + - 0.25
Del. quantity cm³/1000 strokes : 210.0
Tolerance cm³/1000 strokes : + - 10.0
Check tolerance cm³/1000S. : + - 14.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 5.20
Tolerance mm : + - 0.30
Del. quantity cm³/1000 strokes : 13.0
Tolerance cm³/1000 strokes : + - 3.0
Check tolerance cm³/1000S. : + - 6.0
Speed
Tolerance cm³/1000 strokes : 6.0
Check tolerance cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.06.95
Test oil : ISO 4113

Combination No. : 0 402 646 983A

Injection pump
Pump designation : PE6P120A320LS7846
EP type number : 0 412 626 865

Governor
Governor design. : RQV300...1050PA1033
: -2
Governor no. : 0 421 813 994

Cust. part No. : 0230741102

Customer-spec. information

Customer : MB-NFZ
Motor : OM401 LA
Power KW : 230.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Tolerance l/h : + 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 5.55
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 20.50
Tolerance mm : + 0.50

Firing order : 6- 3- 5- 2- 4-
: 1-

Phasing : 0-60-120-180-240
: -300-360

Tolerance : + 0.30
Check
tolerance °NW : + 0.50

Start of delivery mark

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 550

Rack travel in mm : 14.80
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 230.0

Tolerance cm³/1000 strokes : + 1.0
 Check tolerance cm³/1000S. : + 4.0
 Spread Tolerance cm³/1000 strokes : 5.0
 Check tolerance cm³/1000S. : 9.0
 Rated speed rpm : 300
 Rack travel in mm : 6.30
 Tolerance mm : + 0.30
 Del. quantity cm³/1000 strokes : 13.0
 Tolerance cm³/1000 strokes : + 3.0
 Check tolerance cm³/1000S. : + 6.0
 Spread Tolerance cm³/1000 strokes : 6.0
 Check tolerance cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
 guide sleeve travel mm : 1.29
 Tolerance mm : + 0.20
 Rated speed rpm : 1108
 guide sleeve travel mm : 8.53
 Tolerance mm : + 0.15
 Rated speed rpm : 558
 guide sleeve travel mm : 4.53
 Tolerance mm : + 0.25
 Rated speed rpm : 608
 guide sleeve travel mm : 5.03
 Tolerance mm : + 0.25
 Rated speed rpm : 820
 guide sleeve travel mm : 6.13

Tolerance mm : + 0.25
 Rated speed rpm : 1183
 guide sleeve travel mm : 10.00
 Tolerance mm : + 0.25
 Rated speed rpm : 1280
 guide sleeve travel mm : 11.50
 Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1145
 Rack travel in mm : 13.80
 Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550
 Aneroid pressure hPa : 1000
 Del. quantity cm³/1000 strokes : 230.0
 Tolerance cm³/1000 strokes : + 1.0
 Check tolerance cm³/1000S. : + 4.0
 Spread Tolerance cm³/1000 strokes : 5.0
 Check tolerance cm³/1000S. : 9.0

RATED SPEED

control lever position degree : 121.0
 tolerance degree : + 4.0
 rack travel mm : 13.80
 Rated speed rpm : 1095
 Tolerance 1/min : + 5
 rack travel mm : 4.00
 Rated speed rpm : 1195
 Tolerance 1/min : + 15
 rack travel mm : 0.75
 Tolerance mm : + 0.75
 Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 66.0
tolerance degree : + - 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 5.20
Tolerance mm : + - 0.10

Rated speed rpm : 200

CRT mm min. : > 7.00

Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 550
rack travel mm : 14.80
Tolerance mm : + - 0.05

Rated speed rpm : 1050
rack travel mm : 14.80
Tolerance mm : + - 0.10

Rated speed rpm : 700
rack travel mm : 14.80
Tolerance mm : + - 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 400
Pressure hPa : 1000
rack travel mm : 14.80
Tolerance mm : + - 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 400
rack travel mm : 10.80
Tolerance mm : + - 0.15

Rated speed rpm : 400

Pressure hPa : 400
rack travel mm : 12.90
Tolerance mm : + - 0.20

Pressure hPa : 600
rack travel mm : 14.15

Tolerance mm : + - 0.20

START CUT-OUT

Rated speed rpm : < 220
Check speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : 1000
Rated speed rpm : 1050
Del. quantity cm³/1000 strokes : 229.0
Tolerance cm³/1000 strokes : + - 3.0
Check tolerance cm³/1000S. : + - 6.0
Spread
Tolerance cm³/1000 strokes : 8.0
Check tolerance cm³/1000S. : 12.0

Aneroid pressure hPa : -
Rated speed rpm : 500
Del. quantity cm³/1000 strokes : 134.0
Tolerance cm³/1000 strokes : + - 1.0
Check tolerance cm³/1000S. : + - 4.0
Spread
Tolerance cm³/1000 strokes : 8.0
Check tolerance cm³/1000S. : 12.0

BREAKAWAY

Rack travel in mm : 13.80
Rated speed rpm : 1095
Tolerance 1/min : + - 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity cm³/1000 strokes : 210.0
Tolerance cm³/1000 strokes : + - 15.0

Check tolerance
cm³/1000S. : + 19.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 6.30
Tolerance mm : + 0.30
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0
Spred
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 31.05.95
Test oil : ISO 4113

Combination No. : 0 402 646 988

Injection pump
Pump designation : PE6P120A320RS7230
: -10X
EP type number : 0 412 626 899

Governor
Governor design. : RQV250...1000PA990K
Governor no. : 0 421 815 274

Cust. part No. : 1250705/4

Customer-spec. information

Customer : DAF
Motor : WS 295 L
Power KW : 295.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 5.05
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.30
Check
tolerance °NW : + 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 980

Rack travel in mm : 13.95
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 259.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance cm³/1000S. : + 4.0
 Spred Tolerance cm³/1000 strokes : 5.0
 Check tolerance cm³/1000S. : 9.0
 Rated speed rpm : 250
 Rack travel in mm : 6.10
 Tolerance mm : + 0.10
 Del. quantity cm³/1000 strokes : 17.0
 Tolerance cm³/1000 strokes : + 3.0
 Check tolerance cm³/1000S. : + 6.0
 Spred Tolerance cm³/1000 strokes : 8.0
 Check tolerance cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 250
 guide sleeve travel mm : 1.53
 Tolerance mm : + 0.10
 Rated speed rpm : 1038
 guide sleeve travel mm : 9.74
 Tolerance mm : + 0.10
 Rated speed rpm : 686
 guide sleeve travel mm : 6.41
 Tolerance mm : + 0.25
 Rated speed rpm : 284
 guide sleeve travel mm : 2.27
 Tolerance mm : + 0.25
 Rated speed rpm : 334
 guide sleeve travel mm : 3.17
 Tolerance mm : + 0.25
 Rated speed rpm : 390

guide sleeve travel mm : 3.79
 Tolerance mm : + 0.25
 Rated speed rpm : 1310
 guide sleeve travel mm : 13.50
 Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1130
 Rack travel in mm : 13.50
 Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 980
 Aneroid pressure hPa : 1500
 Del. quantity cm³/1000 strokes : 259.0
 Tolerance cm³/1000 strokes : + 1.0
 Check tolerance cm³/1000S. : + 4.0
 Spred Tolerance cm³/1000 strokes : 5.0
 Check tolerance cm³/1000S. : 9.0

RATED SPEED

control lever position degree : 120.0
 tolerance degree : + 4.0
 rack travel mm : 12.95
 Rated speed rpm : 1032
 Tolerance 1/min : + 5
 rack travel mm : 4.00
 Rated speed rpm : 1150
 Tolerance 1/min : + 15
 rack travel mm : 0.70
 Tolerance mm : + 0.70
 Rated speed rpm : 1275

LOW IDLE

control lever
position degree : 70.0
tolerance degree : + - 4.0

Testing:

Rated speed rpm : 250
rack travel mm : 5.20
Tolerance mm : + - 0.10

rack travel mm : 2.00
Rated speed rpm : 350
Tolerance 1/min : + - 20

Rated speed rpm : 150
CRT mm min. : > 7.00

TORQUE CONTROL

Rated speed rpm : 980
rack travel mm : 13.95
Tolerance mm : + - 0.05

Rated speed rpm : 600
rack travel mm : 12.35
Tolerance mm : + - 0.05

Rated speed rpm : 825
rack travel mm : 13.40
Tolerance mm : + - 0.10

Rated speed rpm : 400
rack travel mm : 12.20
Tolerance mm : + - 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 980
Pressure hPa : 1500
rack travel mm : 13.95
Tolerance mm : + - 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 980
rack travel mm : 8.90
Tolerance mm : + - 0.10

Rated speed rpm : 980
Pressure hPa : 730

rack travel mm : 12.65
Tolerance mm : + - 0.05
Pressure hPa : 300
rack travel mm : 9.80
Tolerance mm : + - 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 257.0
Tolerance
cm³/1000 strokes : + - 2.0
Check tolerance
cm³/1000S. : + - 5.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 165.0
Tolerance
cm³/1000 strokes : + - 1.0
Check tolerance
cm³/1000S. : + - 4.0

BREAKAWAY

Rack travel in mm : 12.95
Rated speed rpm : 1032
Tolerance 1/min : + - 5

LOW IDLE

Rated speed rpm : 250
rack travel mm : 6.10
Tolerance mm : + - 0.10
Del. quantity
cm³/1000 strokes : 17.0
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 6.0

Spred
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.04.95
Test oil : ISO 4113

Combination No. : 0 402 646 989

Injection pump
Pump designation : PE6P120A320RS7230
: -10Y
EP type number : 0 412 626 898

Governor
Governor design. : RQV250...1000PA990K
Governor no. : 0 421 815 274

Cust. part No. : 1250708/2

Customer-spec. information

Customer : DAF
Motor : WS 315 L
Power KW : 315.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.05
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 14.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : ± 0.30
Check
tolerance *NW : ± 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 980

Rack travel in mm : 14.55
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 274.0

Tolerance
cm³/1000 strokes : ± 1.0

| | |
|--|----------|
| Check tolerance cm ³ /1000S. | : + 4.0 |
| Spread Tolerance cm ³ /1000 strokes | : 5.0 |
| Check tolerance cm ³ /1000S. | : 9.0 |
| Rated speed rpm | : 250 |
| Rack travel in mm | : 6.20 |
| Tolerance mm | : + 0.10 |
| Del. quantity cm ³ /1000 strokes | : 17.0 |
| Tolerance cm ³ /1000 strokes | : + 3.0 |
| Check tolerance cm ³ /1000S. | : + 6.0 |
| Spread Tolerance cm ³ /1000 strokes | : 8.0 |
| Check tolerance cm ³ /1000S. | : 12.0 |

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

| | |
|---------------------------|----------|
| Rated speed rpm | : 250 |
| guide sleeve travel mm | : 1.53 |
| Tolerance mm | : + 0.20 |
| Rated speed rpm | : 104 |
| guide sleeve travel mm | : 9.82 |
| Tolerance mm | : + 0.15 |
| Rated speed rpm | : 689 |
| guide sleeve travel mm | : 6.43 |
| Tolerance mm | : + 0.25 |
| Rated speed rpm | : 284 |
| guide sleeve travel mm | : 2.27 |
| Tolerance mm | : + 0.25 |
| Rated speed rpm | : 334 |
| guide sleeve travel mm | : 3.08 |
| Tolerance mm | : + 0.25 |
| Rated speed rpm | : 400 |

| | |
|---------------------------|----------|
| guide sleeve travel mm | : 3.92 |
| Tolerance mm | : + 0.25 |
| Rated speed rpm | : 1310 |
| guide sleeve travel mm | : 13.50 |
| Tolerance mm | : + 0.50 |

GUIDE SLEEVE POSITION

| | |
|-------------------|----------|
| Rated speed rpm | : 1130 |
| Rack travel in mm | : 13.50 |
| Tolerance mm | : + 1.30 |

FULL LOAD DELIVERY AT FULL LOAD STOP

| | |
|--|---------|
| Rated speed rpm | : 980 |
| Aneroid pressure hPa | : 1500 |
| Del. quantity cm ³ /1000 strokes | : 274.0 |
| Tolerance cm ³ /1000 strokes | : + 1.0 |
| Check tolerance cm ³ /1000S. | : + 4.0 |
| Spread Tolerance cm ³ /1000 strokes | : 5.0 |
| Check tolerance cm ³ /1000S. | : 9.0 |

RATED SPEED

| | |
|----------------------------------|----------|
| control lever position degree | : 120.0 |
| tolerance degree | : + 4.0 |
| rack travel mm | : 13.55 |
| Rated speed rpm | : 1032 |
| Tolerance 1/min | : + 8 |
| rack travel mm | : 4.00 |
| Rated speed rpm | : 1150 |
| Tolerance 1/min | : + 15 |
| rack travel mm | : 0.70 |
| Tolerance mm | : + 0.70 |
| Rated speed rpm | : 1275 |

LOW IDLE

control lever
position degree : 70.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 250
rack travel mm : 5.20
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 340
Tolerance 1/min : \pm 20

Rated speed rpm : 150
CRT mm min. : > 7.00

TORQUE CONTROL

Rated speed rpm : 980
rack travel mm : 14.55
Tolerance mm : \pm 0.05

Rated speed rpm : 600
rack travel mm : 13.30
Tolerance mm : \pm 0.05

Rated speed rpm : 400
rack travel mm : 13.20
Tolerance mm : \pm 0.10

Rated speed rpm : 800
rack travel mm : 14.20
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 980
Pressure hPa : 1500
rack travel mm : 14.55
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 980
rack travel mm : 9.10
Tolerance mm : \pm 0.10

Rated speed rpm : 980

Pressure hPa : 760

rack travel mm : 13.15
Tolerance mm : \pm 0.05
Pressure hPa : 350
rack travel mm : 10.30
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : 1500
Rated speed rpm : 600
Del. quantity cm³/1000 strokes : 286.0
Tolerance cm³/1000 strokes : \pm 2.0
Check tolerance cm³/1000S. : \pm 5.0
Spread Tolerance cm³/1000 strokes : 8.0
Check tolerance cm³/1000S. : 12.0

Aneroid pressure hPa : -
Rated speed rpm : 600
Del. quantity cm³/1000 strokes : 172.0
Tolerance cm³/1000 strokes : \pm 1.0
Check tolerance cm³/1000S. : \pm 4.0

BREAKAWAY

Rack travel in mm : 13.55
Rated speed rpm : 1032
Tolerance 1/min : \pm 8

LOW IDLE

Rated speed rpm : 250
rack travel mm : 6.20
Tolerance mm : \pm 0.10
Del. quantity cm³/1000 strokes : 17.0
Tolerance cm³/1000 strokes : \pm 3.0
Check tolerance cm³/1000S. : \pm 6.0

Spred
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS**Note remarks**

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 31.05.95
Test oil : ISO 4113

Combination No. : 0 402 648 798

Injection pump
Pump designation : PE8P120A320LS7830
EP type number : 0 412 628 844

Governor
Governer design. : RQV350...1000PA1234
Governer no. : 0 421 814 153

Cust. part No. : 0230746502

Customer-spec. information

Customer : MTU
Motor : 8V 183-02
Power KW : 365.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Overflow quantity
min. l/h : 85
Tolerance l/h : + 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 4.45
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 20.25
Tolerance mm : + 0.75

Firing order : 8- 7- 2- 6- 3
: - 5- 4- 1

Phasing : 0-45-90-135-180
: -225-270-315

Tolerance : + 0.30
Check
tolerance °NW : + 0.75

Start of delivery mark

Barrel no. : 8

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 13.00
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 237.0

Tolerance
 cm³/1000 strokes : + 1.0

 Check tolerance
 cm³/1000S. : + 4.0

 Spread
 Tolerance
 cm³/1000 strokes : 6.0

 Check tolerance
 cm³/1000S. : 9.0

 Rated speed rpm : 350

 Rack travel in mm : 5.60
 Tolerance mm : + 0.30
 Del. quantity
 cm³/1000 strokes : 13.0
 Tolerance
 cm³/1000 strokes : + 3.0
 Check tolerance
 cm³/1000S. : + 6.0
 Spread
 Tolerance
 cm³/1000 strokes : 6.0
 Check tolerance
 cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 350
 guide sleeve
 travel mm : 1.53
 Tolerance mm : + 0.20

 Rated speed rpm : 1055
 guide sleeve
 travel mm : 6.50
 Tolerance mm : + 0.15

 Rated speed rpm : 870
 guide sleeve
 travel mm : 4.94
 Tolerance mm : + 0.25

 Rated speed rpm : 404
 guide sleeve
 travel mm : 2.52
 Tolerance mm : + 0.25

 Rated speed rpm : 454
 guide sleeve
 travel mm : 3.07
 Tolerance mm : + 0.25

Rated speed rpm : 570
 guide sleeve
 travel mm : 3.45
 Tolerance mm : + 0.25

 Rated speed rpm : 1241
 guide sleeve
 travel mm : 10.00
 Tolerance mm : + 0.25

 Rated speed rpm : 1330
 guide sleeve
 travel mm : 11.50
 Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1220

 Rack travel in mm : 12.00
 Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
 Aneroid pressure
 hPa : 2000
 Del. quantity
 cm³/1000 strokes : 237.0
 Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 4.0
 Spread
 Tolerance
 cm³/1000 strokes : 6.0
 Check tolerance
 cm³/1000S. : 9.0

RATED SPEED

control lever
 position degree : 109.0
 tolerance degree : + 4.0

 rack travel mm : 12.00
 Rated speed rpm : 1045
 Tolerance 1/min : + 5

 rack travel mm : 4.00
 Rated speed rpm : 1150
 Tolerance 1/min : + 15

 rack travel mm : 0.50
 Tolerance mm : + 0.50

Rated speed rpm : 1250

LOW IDLE

control lever
position degree : 66.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 5.60
Tolerance mm : + 0.10

Rated speed rpm : 250

CRT mm min. : > 6.70

Rated speed rpm : 400

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 13.00
Tolerance mm : + 0.05

Rated speed rpm : 750
rack travel mm : 13.00
Tolerance mm : + 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 2000
rack travel mm : 13.00
Tolerance mm : + 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 7.00
Tolerance mm : + 0.15

Rated speed rpm : 500

Pressure hPa : 400
rack travel mm : 8.45
Tolerance mm : + 0.05

Pressure hPa : 1000
rack travel mm : 11.40

Tolerance mm : + 0.15

START CUT-OUT

Rated speed rpm : < 270
Check speed 1/min : < 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : 2000
Rated speed rpm : 750
Del. quantity cm³/1000 strokes : 238.0
Tolerance cm³/1000 strokes : + 3.0
Check tolerance cm³/1000S. : + 6.0

Aneroid pressure hPa : -
Rated speed rpm : 500
Del. quantity cm³/1000 strokes : 92.0
Tolerance cm³/1000 strokes : + 1.0
Check tolerance cm³/1000S. : + 4.0

BREAKAWAY

Rack travel in mm : 12.00
Rated speed rpm : 1045
Tolerance 1/min : + 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity cm³/1000 strokes : 230.0
Tolerance cm³/1000 strokes : + 15.0
Check tolerance cm³/1000S. : + 19.0

LOW IDLE

Rated speed rpm : 350
rack travel mm : 5.60
Tolerance mm : + 0.30

Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : + - 3.0
Check tolerance
cm³/1000S. : + - 6.0
Spred
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet